ROCKS AND MINERALS

MINERALOGY
•
GEOLOGY
•
LAPIDARY

A quartz crystal cluster mounted on a Burl root base, for a TV unit. Light below. Designed by Helen Snyder of "Highlights." See "Lamps of Stone" in this issue.

60c

SEPTEMBER - OCTOBER, 1954
Whole Number 242

59th LIST OF FINE MINERALS

URANOCIRCITE, Saxony. Small xls. on Quartz. 2¼x1¾	$ 4.00
SAMARSKITE, N. Carolina. Xlline. mass. 3x2½. (12 oz.)	3.00
DUFRENITE, Cornwall. Minutely mamillary & xlline. in rock. 3x2	3.00
CHROMITE, Transvaal. ½" vein in greenish massive GROSSULARITE. 3x2½	2.50
CINNABAR, Schemnitz. Micro. xld. w. Pyrite on matrix. 3x2	3.50
TOPAZ, San Luis Potosi. 1" xl. in rock. 2x2½	3.50
ANTIMONY, Kern Co., Cal. Solid nodule with altered surface. 1¾x1½	1.50
CHILDRENITE. Tavistock, Devon. Micro. xld. on flat matrix. 3x2½	2.50
OCTAHEDRITE, Salzburg, Austria. Minute xls. on rock. 2x2½	2.50
SMALTITE, Schneeberg. Well xld. mass. 2½x1½x1	5.00
CROCIDOLITE, S. Africa. Blue asbestiform mass. 2½x2x1½	2.50
JOAQUINITE, California. Minute xls. on rock w. Neptunite. 2x1½	2.50
UVAROVITE, California. In small brilliant xls. on Chromite. 2x1½	6.00
MANGANOTANTALITE, W. Australia. Xlline. mass. 2½x1¼ (8 oz.)	2.00
CELESTITE, Sicily. Group of large xls. in parallel position. 3x2½x2	3.00
BROCHANTITE, Bisbee. Mass of interlacing xls. 3x1¾x1¼	3.00
RHODONITE v. FOWLERITE, Franklin. Group of large xls. 3½x2x2	5.00
ERYTHRITE, Schneeberg. Xld. radiating in Quartz. 2x1¾	4.00
WOLFRAMITE, Cornwall. Pure xlline. mass. 2¾x1½x1¼. (12 oz.)	2.50
TORBERNITE, Cornwall, Small stout xls. on matrix. 1½x1	3.00
LEADHILLITE, Bisbee. Xlline. platy masses in Chalcocite. 2x2½	3.00
CYRTOLITE, Bedford, New York. Solid 12 oz. mass. 2x2x2	3.50
KYANITE. Switzerland. Blue xls. w. Staurolite in Schist. 4x3	3.50
CALCITE, Cumberland. "Butterfly" twin xl. 2¾x2x1¼	3.50
Another, superb xl. 4x3x2. (10 oz.) One of the largest I have had.	17.50
CHLOANTHITE, Schneeberg. Xld. with Fluorite xls. on matrix. 2½x1¾	5.00
GIBBSITE, Richmond, Mass Encrusting Limonite. 3x1½x1½	2.00
BABINGTONITE, Westfield, Mass. In very large xls. w. Datolite. 3x2½	3.50
APATITE, Ontario. Two blue term. xls. in parallel pos. 2¾x1¼	3.00
CERUSSITE, Mammoth Mine, Ariz. Very fine mass reticulated xls. 2x2	5.00
SYLVANITE, Offenbanya. Xld. & xlline. on rock. 3½x2	6.00
BOURNONITE, Cornwall. Xld. with Quartz. 2½x2	3.00
EUDIALYTE, AEGIRITE, Etc., Magnet Cove, Arkansas 3x2x1½	2.00
GMELINITE. Paterson, N.J. Xld. with Chabazite, etc. in rock. 4x3x2	3.00
RHODOCHROSITE, Siegen. Deep-pink sheaflike xls. in black ore. 3x2½	3.00
DANBURITE, Switzerland. Micro. xls. on xld. Quartz. 2½x1¾	2.00
SPODUMENE v. HIDDENITE, N. Carolina. Term. xl., good color. ½x¼"	10.00
CORNWALLITE, Cornwall. Micro. mammillary on Quartz xls. 2½x1	5.00
DIOPTASE, S W. Africa. Xld. with massive Plancheite. 2x1½	7.50
PYRITE, Elba. Mass of splendent xls. 5x3x2. (3 lbs.)	12.50
THOMSONITE, Michigan. radiated masses in rock. 3½x2½	2.50
APATITE, Bohemia. Lilac xls. on rock. 1¼x1¼	2.00
PYRARGYRITE, Harz Mts. Good brilliant xls. on matrix. 2x1½	10.00
PYROMORPHITE, Cumberland. Bright green xld. mass. 3½x2½	5.00
CACOXENITE, Hellertown, Pa. Xld. tufts on limonitic rock. 3x2½x2	3.00
AZURITE. Laurium, Greece. Minutely xld. on matrix. Dark blue. 4x2½	3.50
ADAMITE, Laurium, Greece. Very fine mass w. xld. surface. 2x1¼	6.00
CHRYSOBERYL, Brazil. Good translucent twin xl. grp. 1½x1	7.50
PHENAKITE, Mt. Antero, Col. 7/8" loose xl.	2.00
GOLD, Durango, Colorado. Xld. in vugs of xld. Quartz. 2x1½	10.00

HUGH A. FORD

Office and Showroom: 110 Wall Street New York 5, N. Y.

Telephone: BOwling Green 9-7191

No list furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PETER ZODAC, Editor and Publisher

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CHIPS FROM THE QUARRY

Notes on Rocky Mt. Convention

Editor R & M:

We have just returned from attendance at the American and Rocky Mountain Federations Convention and Show at Salt Lake City, June 11, 12, 13. Although these are informal notes and not suitable for publication, part of the information may be of interest to you, especially if other correspondents do not write up the show for you.

My wife and I traveled leisurely through New Mexico, Colorado and Utah enroute to the Convention. From El Paso, we drove north via Alamogordo, Vaughn, Santa Rosa, Las Vegas, Raton, and Trinidad to Walsenburg, Colorado, for the first day. Next day we reached Boulder, Colorado, after playing around in Garden of the Gods for several hours. In Boulder, we contacted Mr. and Mrs. J. E. Byron and spent a very pleasant time with them going over micro mount material, for which he is one of the very few dealers. Some excellent and rare specimens were obtain for my collection. We had a tentative appointment with Bob Roots in Denver for the next day, but somehow missed him. So we headed west on U.S. 40, crossing the Continental Divide at 3 places, Berthoud, Muddy and Rabbit Ears Passes. Our stop for the night was at Steamboat Springs. Next day we drove on to Vernal, Utah, stopping, as we have done previously, at Dinosaur Motor Lodge. Next door to the motel is a museum maintained by the State of Utah. It has excellent displays (fossils, mining, etc.) and is well worth a couple of hours time. The road to Dinosaur National Monument was practically impassible, so we did not repeat our last year's visit to that place. The following day we drove on to Salt Lake City, made motel reservations for the Convention period, and then went on west to Wendover. This was our first look at the Bonnerville Salt deposits, and the site of the world's record auto speed trials.

We returned next day to Salt Lake City, going out in the afternoon for a pre-convention look at the display and commercial places at Utah County fair ground. Many of our good friends from Oregon were on hand during the next two days, and we devoted much time to visiting with them. Included were the J. Lewis Rentons (he is new president of the American Federation); Mr. and Mrs. Albert J. Keen (President of Geological Society of the Oregon Country and Vice President of the Oregon Agate and Mineral Society-; Mr. and Mrs. Melvin Kathan (Past President of OAMS); Mr. and Mrs. A. W. Hancock (he is Past President and Honorary Life Member of both GSOC and OAMS., the grand old man of Oregon Geology. She is a Past President and Honorary Life Member of OAMS).

Mr. Earl Van Deventer enrolled me in Ye Old Timers Mineral Club. As soon as the dues were paid, I got dividends by requesting and getting an introduction to Mr. Arthur L. Flagg of Phoenix. We soon arranged a swap of micromounts—my Oregon zeolites for his Arizona coppers. In such ways do we gain the treasures in our collections.

I have high-graded Bob Root's sales stock so many times (last one at the Odessa Show) that I got only two specimens from him. One a micro from Globe, is the reddest vanadinite I have ever seen. The other was a reference piece of nagyagite from Cripple Creek. Getting reference pieces of tellurides, even in micromount size, is some job. Out of the twenty odd known tellurides, my score to date is an even 10.

A large hall with built-in glass cases housed the gem and mineral exhibits. In quality and quantity, these were in line with the best traditions of gem and mineral shows.

In the building devoted to commercial tables, the display of Mr. M. L. Larson and Sons, 3278 Ogden Avenue, Ogden, Utah, of fossil fish from Kemmerer, Wyo., was easily the outstanding attraction. Actually, dozens of these Eocene fish were displayed for sale, and at very fair prices. Since Mr. Haddenham of Kemmerer became unable to quarry and prepare these fossils, Mr. Larsen should be commended for making them available. Many California dealers were present as well as those from the Rocky Mountain area. I did not see any from Arizona or New Mexico.

Our return trip via Provo, Price, Moab, Cortez, Gallup, Socorro and Las Cruces, was uneventful. At Moab, Monticello and Grants, which are centers of uranium mining, we saw scant evidence of such mining, each place being just a sleepy little village.

Ford E. Wilson
2924 Mountain Ave.,
June 21, 1954 El Paso, Texas

COMING EVENTS

AUSTIN GEM AND MINERAL SOCIETY SHOW—November 20 and 21 at the L. C. R. A. building, Austin, Texas.

E. A. King
Magazine Publicity
Austin Gem and Mineral Society
2712 East 22nd Street
Austin, Texas.

MINERALS OF THE PALAU ISLANDS*

By GILBERT CORWIN

U. S. Geological Survey, Washington 25, D. C.

Most of the 300 or more islands, islets, and rocks of the Palaus are surrounded by coral reefs. (See figure 1.) Two small atolls, Ngaruangl with one barren island and beautiful Kayangel with four wooded islands, lie north of the main reef; the isolated phosphate-bearing island, Angaur, lies to the south. Within the main barrier and fringing reef the islands can be divided into two major types: (1) the northern volcanic islands, and (2) the southern limestone islands. Koror and a few other small islands near the center of the group are a combination of the two types.

The volcanic islands are composed predominantly of pyroclastic rocks, with minor amounts of lava and intrusive dikes, sills, and plugs. They are characterized by gently rolling uplands, a few sharp ridges, and deeply incised, permanently flowing streams. Babelthuap, one of the northern volcanic islands, has an area of 128 square miles—about four-fifths of the land area of the entire island group. The highest point in the Palaus (794 feet) is in the northwestern part.

The limestone islands can be divided into two categories. The first consists of cemented reef and lagoonal deposits that have been uplifted to elevations of 600 feet or more and have been eroded into rugged ridges and knobs bounded by cliffs. The second category includes the low reef and platform islands; these are composed of calcareous sands, gravels, and limestones and are only a few feet above sea level at high tide. There are no streams on the limestone islands.

The minerals of the Palau Islands can be separated into four major groups: (1) the volcanic rock-forming minerals, (2) zeolites and other cavity minerals, (3) vein and ore minerals, and (4) minerals of the limestone islands. Some good localities for collecting are shown on the index map, figure 1.

The chief mineral constituents of the basalts, andesites, and dacites are plagioclase feldspars, augite, hypersthene, hornblende, magnetite, and, in a few specimens, olivine or quartz. Isolated crystals of some of these minerals are also important constituents of the tuffs, which are exposed at many places along the coasts and in the streams of the volcanic islands. Plagioclase crystals half an inch long or longer range in composition from calcic bytownite to andesine. Most crystals are twinned and highly zoned. Commonly the zoning is accentuated by oriented inclusions and can be seen in broken crystals of the tuffs and andesites. Anorthite was noted in rock fragments of some tuffs and volcanic breccias.

Fresh crystals of augite, hypersthene, and hornblende are abundant in the tuffs exposed along the western coast of Babelthuap and on Arakabesan Island to the southwest. Most of the better crystals are relatively small (less than half an inch), but a few larger ones were seen. One augite crystal with well-developed faces is twinned parallel to the front pinacoid, giving rise to a nearly perfect, symmetrical swallow-tail crystal.

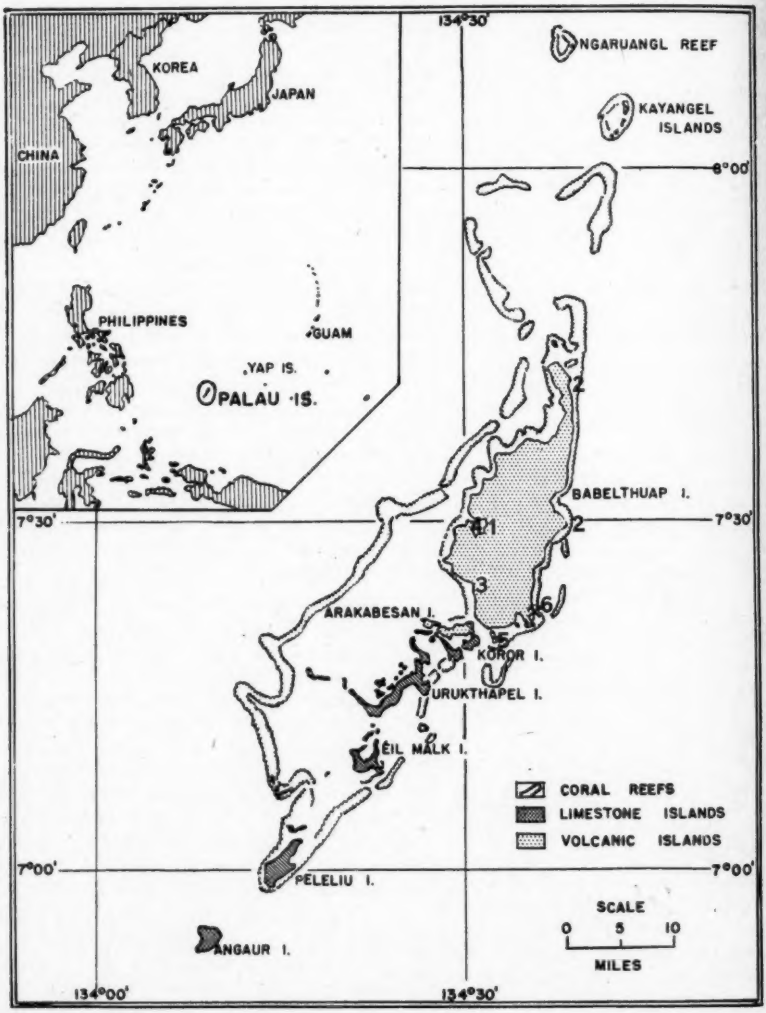
Small doubly terminated bipyramidal crystals of quartz are numerous in some of the dacitic rocks that crop out near Karamado Bay on the west side of Babelthuap Island. One day while the writer was sitting on a beach having lunch and watching the fascinating little gobies or mudskippers (small fish that leave the water and skip about on mud flats or beaches to catch insects), he noticed large numbers of the small quartz crystals in the coarse sand and was able to collect a handful.

The vesicles, cavities, and veinlets of the volcanic and pyroclastic rocks contain a wide variety of zeolites and other interesting minerals. Of the zeolites, stilbite and natrolite seem to be most abundant. Most specimens of stilbite consist of radiating sheaflike aggregates up to three-fourths of an inch or more in length. Those of natrolite are composed

*Publication authorized by the Director, U. S. Geological Survey.

of radiating or parallel aggregates of acicular crystals up to half an inch in length. Although their forms are relatively characteristic, the stilbite and natrolite were confirmed optically and by X-ray photographs by J. M. Axelrod of the U. S. Geological Survey.

Other zeolites that were collected include laumontite, analcime, heulandite, and thomsonite. Short prismatic crystals of laumontite, together with small amounts of calcite, form veinlets in tuffs on southwestern Babelthuap. Intergrowths of two or more zeolites were found in



Index map of the Palau Islands showing mineral localities. 1, Beach sand containing quartz crystals; 2, zeolite veins; 3, Veinlets of Laumontite; 4, Celadonite-Chalcedony aggregates; 5, "Yap money cave"; 6, "Gold Mine."

amygdules and veinlets at several localities. Analcime is a common alteration product of plagioclase in a number of tuffs. A German writer, Oebbeke (1881), has described probable thomsonite from the Palaus, and it is likely that other zeolite varieties can be discovered without difficulty.

Quartz, opal, chalcedony, calcite, and aragonite are probably more abundant than zeolites in veinlets and cavities of the rocks. Quartz veinlets are common as residuals in the deep lateritic mantle overlying the volcanic rocks. Many are composed of numerous small crystals growing into cavities. Opal and chalcedony are very common in the younger andesitic and dacitic pyroclastic rocks exposed on the west side of Babelthuap and on Arakabesan and other nearby islands. One sample of a well-banded 2-inch veinlet of opal and chalcedony from southwestern Arakabesan approaches gem quality.

Near Karamado Bay on western Babelthuap, cavities up to several inches across in the volcanic breccias are filled with a glassy green aggregate of chalcedony and a bright-green celadonite. Identification of the celadonite was confirmed by X-ray photographs taken by J. W. Gruner and Lynn Gardner at the University of Minnesota. Because the disseminated masses of celadonite are soft, the seemingly uniform aggregates do not take a high polish.

Aragonite was not found in the Palau volcanic rocks collected by the field party, but it has been described by Dürrfeld (1910), a German mineralogist who acquired a basaltic fragment from a missionary society. The crystals that Dürrfeld studied were up to a third of an inch in length and contained a large number of crystal faces.

Most vein and ore minerals from the Palaus were collected at the 'gold mine' on the southeast coast of Babelthuap. The 'gold mine' consists of several prospects that were made by the Japanese in a mineralized vein system nearly 12 feet wide (See Tayama, 1939). Prospecting followed the discovery of small quantities of gold in the muds of the adjacent mangrove swamps and in the gossan overlying the veins. Unfortunately almost no gold was found, but exploration was continued because small amounts of the zinc sulphide sphalerite were discovered. The work did not yield a reserve large enough to warrant exploitation.

Specimens from the 'gold mine' contain good crystals of brown sphalerite up to half an inch or more across. One of the larger crystals has well-developed faces of both the positive and the negative tetrahedrons and striations of polysynthetic twin lamellae. The sphalerite is associated with smaller crystals of pyrite and chalcopyrite in a gangue composed chiefly of quartz and clinozoisite.

Stibnite, native copper, pyrite, marcasite, and crystals of magnetite have been found or reported from other areas on the Palaus, but noteworthy specimens of these minerals were not collected by the writer. Although they could hardly be called museum pieces, good samples of kaolinite, gibbsite, and other secondary products have been found in the thick weathered mantle overlying the volcanic rocks. Small but rich deposits of bauxite are present at several places on the uplands.

Among the most noteworthy minerals from the high limestone islands is aragonite. Fibrous and stalactitic varieties are common in the caves and smaller cavities of the rocks. Of special interest are the deposits found in the "Yap Money Cave" on a small island off the south end of Babelthuap. Here the calcite and accompanying aragonite were quarried to make the large doughnut-like money used on the island of Yap, nearly 200 miles northeast of the Palaus. There are many tales of the long, hard voyages made by the people of Yap in their outrigger canoes in order to quarry the cave deposits and make the large coins that now line their streets and adorn their front yards. An Irish-American trader named O'Keefe sailed from Yap to the Palaus with the express purpose of making counterfeit Yap money from the deposits in the cave.

Veinlets of apatite weathered in relief were found in deeply indented tidal notches at the base of some cliffs on the high limestone islands. Nodules com-

posed chiefly of apatite are abundant in the phosphate deposits being mined on Angaur.

Undoubtedly many other minerals can be found in the volcanic rocks and limestones of the Palaus. Mineral collectors who have the opportunity to visit or work on the islands can contribute much to our knowledge and understanding of this new protectorate of the United States. The natives are wonderful hosts and are sure to be helpful in the quest.

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Tayama, Risaburo, 1939, A brief report on the geology and mineral resources of Babelthuap Island (Palau Island Proper) (in Japanese): Tropical Indus. Inst. Bull., vol. 3, p. 1-19, Palau. (Translation in files of U. S. Geological Survey.)

Southern Gem Mining Co. Elections
(From the El Paso Herald Post)

At the annual stockholders' meeting of Southern Gem Miming Company held July 1, at El Paso, Texas, Mr. Harry Warren of 1709 Bryn Mawr Street N. E., Alburquerque, New Mexico, a former member of the United States Securities & Exchange Commission and former First Vice President of the Midwest National Bank of Kansas City, was elected a Vice President. Mr. Warren was in El Paso for the purpose of attending the annual stockholders' meeting.

The company's principal office is in Carson City, Nevada. Its major American holdings are properties in Nevada, Arkansas, New Mexico and Texas. A subsidiary company, Southern Gem & Mineral Company, is one of the major companies engaged in the importation and sale of gem minerals.

Officers and directors selected for the ensuing year are as follows:
Officers:
Colonel E. M. Barron, President
Mr. Harry Warren, Vice President
Comdr. James W. Bagby, Jr., Vice President
M.B. Barron, Secretary and Treasurer

Director:
Colonel E. M. Barron, Chairman of the Board
Commander James W. Bagby, Jr.
M. B. Barron.

Museum of North Carolina Minerals

Editor R & M:

The long contemplated Museum of North Carolina Minerals is expected to be under construction in the next few weeks, as explained in an article in our issue of July 15, copy of which is sent herewith.

This district is visited by a rapidly increasing number of people interested in the unusually large variety of minerals and semi-precious stones that occur locally. The completion of the museum should give such visitors a much better understanding of what they may find in the district. National Park Service is cooperating with local people who might act as guides to the best prospects for collectors.

If you wish any information about the museum as work on it progresses, I shall be glad to supply it. Present indications are the museum will be open to the public in the spring of 1955.

S. T. Henry, Editor
Tri-County News
July 26, 1954 Spruce Pine, N. C.

Pocket Microscope

Every collector needs a microscope to examine his specimens, but microscopes are expensive and at times difficult to obtain. Magnifying glasses are within reach, are fairly cheap but often are not powerful enough for a collector's purpose.

A new instrument, a pocket microscope, is now available which is more powerful and costs less than a magnifying glass. And added to this, it has two admirable features—first, it always ready for *instant use;* and second, it has a clip for fastening to a garment.

These pocket microscopes are for sale by James Van Kleeck, 1242 Webb, Cleveland 7, Ohio. See his advertisement in this issue on page 531.

25 Baroques for $5.50

Stanley & Livingston, 3757 Pontiac St., La Crescenta, Calif., are offering a set of 25 all different, identified, highly polished baroque gems for only $5.50.

Judging by the sample set sent us, the specimens have a wide range of colors, forms, and sizes (average 1x1 inch). Our set was mounted in a long narrow box and it looked beautiful.

Baroque gems are specimens of irregular forms that have been polished in a tumbling barrel.

COLOMBO—OUTLET FOR CEYLON GEMS

By COMMANDER JOHN SINKANKAS

EDITOR'S NOTE: This is the fifth of a series of articles by Commander Sinkankas about his collecting adventures while he is serving aboard a U. S. Carrier as Executive Officer. This ship, a light aircraft carrier, was enroute to the Far East where it spent considerable time and in doing so, visited many ports. We hope that you will find pleasure in reading these little episodes out of the life of a regular naval officer who follows the sea professionally but whose off-hours interest is the world of minerals.

Approaching Colombo from the sea, one is impressed mainly with the low coastline,—a thin, palm-fringed streak, hazy with the moisture-laden atmosphere of the southwest monsoon. Close to the concrete gates which protect the opening of the harbor itself, the bright pastels and whites of the buildings in downtown Colombo gradually emerge as the ship draws close. Ships flying flags of all nations are stacked in geometrical windrows in a crowded and confused harbor which makes San Francisco or New York look like barren harbors in comparison. Native craft dart in all directions, luggers from the Maldive Islands are tied up in rows inboard of the more modern ships of steel. Huffing and puffing, the harbor tugs, watchful eyes upon the white-clad English pilot on the bridge, nuzzle the ship into proper position under his guidance. At last, all is secure, the anchors are down with enough chain to ride out the nasty squalls which are frequent during the monsoon, and the stern is tied to a huge buoy. Boats are lowered, accomodation ladders rigged out, and finally the welcome announcement over the loudspeakers: "Now liberty commences....."

On shore all is bewildering confusion until things gradually sort themselves out, —the beggars, the taxi impresarios, the hawkers, stampsellers with flapping sheets of Ceylon stamps,—but after a bit, directions are recognized and a course set for the few establishments in Colombo which are noted for their gems and jewelry. Directly in front of the plaza at the passenger jetty is the Grand Oriental hotel, while up the same street and on the same side, is the firm of O.L.M. Macan Markar, a long established firm dealing in probably the finest gem wares in Ceylon. If you should visit there some day,—ask to see the several enormous gems which the firm prizes highly and which are "good-luck" pieces as far as they are concerned. They are most proud of the enormous 500 carat deep blue sapphire, squarish oval in shape, brilliant cut with the characteristic deep belly and shallow crown which the Singhalese lapidaries love to place upon their stones. It has some few flaws in it which are not too serious when the net effect is considered, and surely, not even a connoisseur would object to possessing this stone because of them. This extraordinary gem is almost 2½" in length to give you an idea of its size! Next they have a star sapphire of a lovely light blue hue and excellent asterism,—it too is enormous, about 1½", in length oval in shape, and somewhat irregular in outline and profile. This gem is called "Wonder Star of Asia," if memory serves correctly, while the faceted sapphire revels in the name of "Blue Giant of the Orient."

One more stone at Markar's is worthy of mention before passing on,—a very fine chrysoberyl catseye with an exceptionally sharp and brilliant line of light. The body color of this stone is the typical yellowish-green of many catseyes and it is not particularly translucent due to the profusion of inclusions, nevertheless, it is a superb stone whose regal rank is at once evident even to the uninitiated.

Abdul Caffoor's, next to the Grand Oriental Hotel, advertised their trade with a large sign stating simply, "GEMS." This place proved disappointing because inventory was being held that day and the museum on the second floor was closed. This store has a large assortment of all standard species of gemstones, including some very indifferent rough, and upon questioning displayed the singular lack of knowledge which characterizes so

many local establishments in Colombo—they knew little of any stone except those most commonly sold to the average person on the street. I was hoping that someone would surely know of a few rare stones and perhaps even have some that could be bought, and if not cut stones, then maybe some rough for an amateur like myself to play with. In this hope I was disappointed until I walked into Siedle's, located a few steps away from the Grand Oriental, and facing the passenger jetty. Father and son hold forth in an establishment, which, with its swinging doors and air of informality, lend more the impression that here is a workshop rather than a salesroom. Young Mr. Siedle is an FGA and a Tully Medal winner, and needless to say, very keen on gems. He, along with Mr. Ekanayaka, to whom I shall shortly refer, represent the only truly qualified gemologists in Colombo and perhaps in all of Ceylon for that matter. This may seem strange that in a veritable hotbed of gem mining, so few persons should actually be qualified to identify the products of the soil on which they live, but the East has gotten along for centuries without science complicating the problems of gem identification and I daresay, several more shall roll by before any great changes are made. In a show-case at Siedle's, neatly arranged and carefully labeled, was a collection of fine Ceylon gemstones as well as others from around the world. A number of very fine Sinhalites were of course conspicuous as well as an exceptional iolite of matchless hue, precisely oriented to place the best color face up. It is the largest of that color and flawlessness that I have seen. A splendid oval brilliant Ceylon sphene of over two carats must also be mentioned since it is a worthy competitor to those obtained in years past from the Swiss Alps. It is a brownish-green, firey, and superbly cut. Speaking of cutting, both Mr. Siedle and Mr. Ekanakaya send their finer stones to be cut abroad, the local brand is justly infamous for its lack of precision and fatal over emphasis on weight as a most important factor. Even the large stones that the firm of Markar possessed, could have been considerably improved had their cutting been entrusted to more enlightened hands.

Mr. Siedle also showed me a range of enstatites which are generally reddish-brown to light brown in color, and whose recent discovery in India has been adequately noted in English gemmological journals. The stones have a rather strong absorption of light depending on crystallographic direction, and must be oriented for cutting with some care. They look well and certainly add another interesting member to the tribe of gemstones.

Another interesting exhibit was a collection of moonstones cut from material newly discovered in the south of India. The rough is found in larger pieces than the standard Ceylon material and is apparently won by direct mining *in situ* rather than in gravel. The cleavages are quite large but sufficiently penetrated by splits and layers of inclusions to provide stones seldom exceeding about 10-20 carats. Their chief claim to fame however, is the body color which ranges from smoky gray with a blue sheen, to yellow, to pale green (highly translucent), and to orange! The latter color is rare among moonstones and its cause is probably the same as that which gives a similar color to the sunstones of Norway,—thin platy inclusions of an iron mineral.

Still another gemstone of interest is andalusite, strikingly similar to certain types from Brazil, and in the rough, quite indistinguishable from the Brazilian. The color is generally light brownish-red, deeper on the ends of a properly cut stone, and paler in the center. There is very little green apparent in any of the stones shown to me.

Mr. Siedle's collection is fortunate in having a lovely large fibrolite which readers in the United States will recognize more readily as sillimanite. Pale grayish-blue in color, the stone is almost a half-inch square and deeply step-cut. It appears virtually flawless and represents the work of an unusually well-qualified lapidary capable of coping with a material

noted for its highly perfect and easily developed cleavages. While at Siedle's I was shown some rough enstatite, which, with the Indian moonstone mentioned above, represented about all that he had available at the time. The rarer stones such as fibrolite, kornerupine, apatite, andalusite, etc., are no doubt found with some regularity in each local mining venture, but, as Mr. Siedle pointed out, the lack of native personnel with the requisite skill needed to pick these stones out from all the rest, probably results in a great number being irretrievably lost. It appears that many small stones of doubtful lineage are lumped together under the catch-all term of "tourmaline" and given to the younger apprentice lapidaries to practice on. The mere thought is horrifying, but then again,—what *can* be done about it? The enstatite rough appears in the form of jagged fragments, sometimes showing imprints of less resistant crystals, and evident signs of being an intergrown constituent of some parent rock. There is scarcely any trace of wear on the pieces and it is assumed that the enstatite is mined from its deeply disintegrated host, possibly in a clayey bed. Where it occurs in India I was unable to find out.

Another store which I visited while in Colombo, was a small place run by the affable Mr. Hameem. He had his own lapidary establishment but time did not permit examination of his workshop, a matter of some regret since the methods of all cutters are of great interest to me. There was little outstanding in what he had to offer except a deep red gemstone which he asked me to identify. It appeared to be glass and I so stated, but he claimed it was a tektite, illustrating by suitable gestures, the celestial orbit followed by the stone as it descended upon Ceylon. He urged me to buy one but since I am allergic to all glasses, particularly those labeled as tektites, I refrained. Later I asked about this red "tektite," especially since I couldn't recall reading in any literature about tektites from Ceylon, and was assured that it was a material called "pit glass" locally, and of artificial origin. Perhaps Mr. Hameem was sincerely mistaken about the red material but it is generally a wise policy in regard to tektites to purchase material in the rough for sometimes the external appearance is characteristic enough to afford certain identification.

During the second day of my visit, I had an opportunity to meet Mr. Ekanayaka who is employed by the Ceylon Customs as appraiser of all gemstones, gems, and jewelry passing through customs. Mr. Ekanayaka is also most keen on gemology and later, at his home, in the suburb of Wellawatte, my eyes were opened by an exceptionally complete gemological laboratory which bore silent testimony to his devotion to the science. We had a most enjoyable evening together going through that mystic ritual which is only known to gemologists and which consists of handing over a stone to the visitor and asking him to identify same. There were of course, the usual bafflers and Mr. Ekanayaka had some which were first rate. There was a cabochon displaying a faint but distinct six-rayed star which looked like smoky quartz in color, had about the same index of refraction and about the same weight, but who ever heard of starred smoky quartz?—well, that's what it was nevertheless. Then another star, this time sitting very sharp and bright on top of a small cabochon of bluish-gray body color. Sapphire?—no, quartz again! The latter material had apparently been sold to someone as excellent star-sapphire and I must say, it did look like it but its light weight was the tip-off. Mr. Ekanayaka also had an excellent assortment of andalusites for which he has a weakness, as well as practically every other stone found in Ceylon. He leans heavily toward the curious and unique rather than the largest and finest, and in this respect, finds much more enjoyment out of gemology than would otherwise be the case.

Some general impressions of the gem market in Colombo may be of some value to those who contemplate a visit. It has been stated before by various authorities, that most of the finer material is sent off as soon as it appears on the market, this was my impression also, since I have sel-

dom seen such a collection of indifferent quality gemstones and in such profusion. It seems that only the poorer grades are placed on display in the dozens of small shops, the grades which a skilled buyer from London, Paris, or New York, would not honor with a second glance. Parcels of star stones were trotted out for example, showing lopsided stars, faint stars, interrupted stars, poor colors, poor shapes, and any other defect one would care to mention. It took considerable persuasion to even convince the shopkeepers to bring out a better quality. There is little doubt in my mind that most of these merchants are consummate salesmen, versed in practical psychology as well as in their products, the buying pressure is terrific and every defect pointed out in a stone is easily and glibly countered by a very plausible explanation for its presence, most often leading to the impression that the defect is really an asset in disguise. The larger stores mentioned previously, are free from this method of salesmanship and are frank in discussing the bad points as well as the good points of any stone offered for examination. Here again, as so abundantly proved elsewhere, it pays to deal with reputable firms only.

There is a surprisingly large amount of Australian opal available in Colombo today which was explained to me as being due to less restrictive trading regulations between the two countries. Local currency regulations, similar to those imposed in the British Isles and designed to prevent an outward flow of money, greatly hamper the purchase of rough gemstones from abroad. I was told that bright yellow citrine is a best seller but since Ceylon produces very little of it, stocks of rough must come from elsewhere, yet under the restrictions currently imposed, this is virtually impossible. The local brand of gold and silverwork is rather poor in quality, especially in the smaller shops. Complicated designs are commonly attempted without however, the requisite skill being available to carry them off. Superficially, many pieces look well but closer examination reveals insecurely set stones, a profusion of scratches from accidental slippage of work tools, lack of finish, and other signs of poor workmanship. Very few metals were hallmarked or even identified qualitatively or quantitatively, one store not even knowing what was in an alloy stated to be "white gold." There is little doubt that sufficient native skill could be marshalled and trained to produce excellently cut stones set in mountings of high quality but at the present time, the discriminating buyer can do little more than to purchase single stones, have them sent abroad for Western re-cutting, and then get them mounted later at home.

With only two days available—two weeks would scarcely have been enough—I could not visit any of the gemming districts, particularly Ratnapura and Pelmadulla which are about 50 to 60 miles distant by road. Mr. Siedle assured me that I would miss little since the heavy rains of the monsoon which prevailed during my visit, curtail much of the mining. All in all, the visit to Colombo was extremely worthwhile, perhaps not from so much from the standpoint of seeing and buying gems, but certainly from that of meeting and talking gems with Mr. Siedle and Mr. Ekanayaka.

New Jersey Mineralogical Society
Plainfield, New Jersey

In Memoriam — Dr. Alfred C. Hawkins

At the meeting of the Board of Directors held Sunday, May 2, 1954, the chairman referred with deep degret to the death, on March 30, 1954, of Dr. Alfred C. Hawkins. The following memorial was adopted by a silent and rising vote:

Resolved, that the members of the Board of Directors of the New Jersey Mineralogical Society, and its members record with profound sorrow the death of their associate Dr. Alfred C. Hawkins on March 30, 1954.

Dr. Hawkins was as honorary and founder member of the New Jersey Mineralogical Society. He will long be remembered for his kindly interest in those about him, and for his revelations of his capacious knowledge of the earth sciences.

He was graduated from Columbia University in 1909, received his Masters Degree from Princeton University in 1912, and was awarded the degree of Doctor of Philosophy by Brown University in 1916.

Dr. Hawkins' ability as a geologist, crystallographer, chemist, and teacher gained the admiration of his associates, while his warm personality and modesty endeared him to his many friends.

CHANITE SAND

By Woodland G. Shockley

Waterways Exp. Sta., Vicksburg, Miss.

This is the sory of an interesting Arkansas sand. Sometime in the early 1940's, shortly after our entry into World War II, a short article appeared in the Little Rock, Arkansas, Gazette in which the discovery of a new metal in the state was reported. It was named Chanite, after its discoverer, Adolph Chanosky, a Fort Worth, Texas oil man and metallurgist. The new metal, true constituents undisclosed, was reported to occur in a sand at some unspecified location in the state.

In the Sunday edition of the Arkansas Gazette for January 21, 1943 there appeared a long feature article on Chanite. It was extolled as a stainless material, not affected by acid or alkalies, magnetic, harder than any known steel, capable of being smelted, welded, etc., etc. The article went on at great length describing the many uses to which this new wonder metal could be put. In the words of the article. "It would seem that this is the greatest discovery of this generation, from a metal standpoint."

The article described the Chanite deposit as covering an area between 5 and 6 square miles extending at least 10 to 20 feet deep and perhaps as deep as 100 feet. The metal in its natural state was said to form about 25 per cent of a light buff sandy loam and was a black, shiny granular substance. The location of this extensive deposit was not given on the grounds that it was "an important military secret."

Naturally, the foregoing information whetted the appetites of our local rockhounds and we were all for finding this place, military secret or no military secret. A few of us managed to secure small specimens of Chanite sand, but try as we would the only clue as to location of the fabulous deposit was that it was somewhere near Hot Springs. Time went on, there was no more mention of Chanite and the thoughts of it gradually slipped from my memory.

In the fall of 1948, after I had moved from Arkansas to Mississippi, we were visiting relatives north of Nashville, Arkansas. They of course knew of my mineral collecting interest and one afternoon suggested that I go down near Mineral Springs, where "that fellow had some kind of a plant for digging minerals." I knew there were no rocks in the immediate area, but the mention of minerals was all I need, so off we went in the car. When we arrived at Mineral Springs, a small village, there was no sign of a plant, diggings, or anything else reminiscent of previous mineral activities. We stopped a local inhabitant and inquired whether there were any mineral diggings hereabout. "Oh yes, I recollect some years back a feller with a funny name, Chan something or other, had some kind of workings out west of town, but he never produced anything and the place has been abandoned for a long time." "Was the man's name Chanosky?" "Yep, something like that." At last I had found where Chanite came from!

Following directions, we drove about a mile and a half west of town, turned north on a field road for about a half mile until we came to a fence. We crossed the fence and walked northwest about another quarter of a mile. There, at the edge of a clump of trees, was the "plant." It consisted of a dumping platform for trucks, the rusted remains of a rotary sand washing screen, and a dilapidated "riffle table" used to concentrate heavy ores. There were no buildings, no machinery, only a few pieces of rusty metal lying on the ground.

Where was the deposit of Chanite? A close examination revealed that it was everywhere under our feet. The soil in the field over which we had just walked was light buff in color, sandy, and contained numerous black specks which glistened when the sun shone on them. There were masses of the black material in surface depressions where it had been

concentrated by erosion. I dug down several inches below the ground in a number of places and in every case the number of black particles in the soil was much less below the surface. Apparently, years of natural erosion had concentrated the black particles on the very surface of the ground.

What is Chanite? My guess is that it is ilmenite. If that is so, then it indeed is the ore of the "wonder metal" titanium, and it may possess many of the qualities claimed by its "discoverer." However, it may scarcely be called a new metal because it has been known to mineralogists for many years. I leave it to the Editor of ROCKS AND MINERALS to say whether my guess is correct.

Editor's Note: A sample of the sand was received from Mr. Shockley. It is a medium grained brown sand consisting chiefly of smoky quartz, flesh-colored feldspar, brown clay (which gives the sand its color), and black lustrous ilmenite. A small amount of black magnetite is also present.

National Gypsum begins Canadian Development

The National Gypsum Company's (Buffalo, N.Y.) estimated $6 million development of its new Nova Scotia gypsum deposits, largest yet discovered in North America, will be ready for full scale quarrying operations by the spring of 1955.

Melvin H. Baker, NATIONAL GYPSUM board chairman, announced today that the new mineral reserves would supply the company's needs at its four Atlantic Seaboard plants for at least 200 years.

Construction of mine and dock facilities at the company's new properties near Halifax are already under way, Baker disclosed.

The Halifax development is part of NATIONAL GYPSUM'S four-year, $37 million expansion program scheduled for completion by mid-1958. The company is also expanding capacity at its gypsum products plants in New York, Baltimore, Savannah and Portsmouth, N.H. by 25 percent at an estimated cost of $3,500,000.

"This Canadian development will provide us with virtually unlimited supplies of high quality raw material at substantially lower cost," Baker said of the Halifax operation.

Baker said that the ship loading and handling equipment now under construction will cut in half the loading time necessary at the company's present quarries in the northern part of Cape Breton Island, where ice conditions suspend shipping during five winter months. Halifax is a year-around, ice free port. The round-trip haul will be reduced by 500 miles.

"To utilize this new reserve of raw material we are also considering a gypsum manufacturing plant in Canada to supply a fast growing market in which the company does not now have facilities," Baker said. "With this low cost rock and the ability to deliver it by ship in such cities as Quebec, Montreal and Toronto, we would be in a position to compete favorably for the Canadian market."

The new deposit was discovered and proved two years ago by NATIONAL GYPSUM COMPANY geologists. At the town of Milford, 30 miles from Halifax, a railroad bridge and necessary buildings and equipment at the quarry site are being built. Overburden is being stripped away from the deposit preliminary to quarrying operations. At Dartmouth, across the bay from Halifax, construction has been started on docks large enough to receive 12,000 ton ships. Cranes, conveyors and other facilities capable of loading a ship in four hours are under construction. The dock project is locatd on a three mile extension of the Canadian National Railroad.

The development is being supervised by the NATIONAL GYPSUM COMPANY'S Engineering Department under the direction of S. David Skinner. The engineering has been assigned to the General Enginering Company of Toronto. General contractors are Foundation Maritime Ltd. of Montreal and Halifax at the quarry, and Grant Mills Ltd. of Montreal at the docks.

THE NATIONAL GYPSUM COMPANY manufactures under the Gold Bond trademark a variety of building materials including such gypsum products as wallboard, lath, plaster and sheathing.

Vermiculite Trains Stretches 165 miles Long

Enough expanded vermiculite was processed last year to fill a freight train 165 miles long, or long enough to reach from New York to Philadelphia and back again.

The Zonolite Company, Chicago, vermiculite processors, says about 80 per cent of the mica-like mineral went into building and industrial fields, while the remaining 20 per cent went into farm and gardening uses.

Likes our new Look and Special Feature

Editor R & M:

Just a short note to the man who has, through hard work and splendid judgment, developed ROCKS AND MINERALS into the best and most comprehensive magazine, including its new dress and several other features dear to lovers of the Geological World.

It is never too late to compliment a good work and honestly, if it is justifiable—and it is."

Albert Lewis Fritz
229 Live Oak Street
Miami, Arizona

June 28, 1954

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—crystalline fl—fluoresces ph—phosphoresces

ALABAMA—The following note was sent in by William M. Johnson, RFD 6, Knoxville, Tenn.

"As frequently happens around cliffs that are sheltered, copperas, alum and epsom salts are formed. A number of ledges in Alabama on the Devonian and Carboniferous formations in Choctaw, Washington, Clarke, Escambia and other counties carry deposits from which "mineral extracts" or "acid iron earth" have been gathered and marketed. Hatchetigbee Bluff, in Washington Co., Ala., was so noted.

ARIZONA — Earl U. Mayer, 1753 "I" St., Yuma, Ariz., sent us recently a most beautiful specimen consisting of lustrous brassy-yellow mass of chalcopyrite associated with iridescent peacock-colored massive bornite and masseive pale smoky quartz. The locality for this handsome specimen is the Buckskin Mts., Yuma Co., Ariz.

ARKANSAS — A recent letter from Byron C. Marshall, 204 Central Ave., Hot Springs National Park, Ark., carries the following item:

"A rare stone formation is an orbicular quartzite. This is hardly ever to be seen, so far as my knowledge goes. Such a quartzite had been found a few years ago, near Murfreesboro, Pike Co., Ark. This is in the cinnabar district of Howard, Pike, and Clark Counties, Ark. This formation, in which the cinnabar occurs, is known as the Jackfork Sandstone. However, so far as I am aware, the orbicular phase is in a very restricted area, though the Jackfork Sandstone has quite a wide area. This quartzite is beautifully orbed in bands of various shades, sometimes larger orbs of six inches, and sometimes smaller, but mostly each orb is made up of many bands, from 1/16 of an inch to possibly an inch. The colors are pale yellowish, tan, then several shades of some darker tan, to light brownish, and a darker maroon brown, to a very dark brown that is almost a black. This is indeed very attractive and beautiful. Sometimes this orbicular quartzite will have a certain amount of red cinnabar adhering to it."

CALIFORNIA — An anonymous contributor in California sends in the following item:

"You might mention in the section on World Mineral Occurrences that an "anonymous contributor" says there are beautiful pink halite crystals growing in small brine pools in the mud flats that now remain where Owens Lake (in Inyo Co., Calif.) once glistened at the foot of the Sierra Nevada. I have a couple of these specimens—excellent groups of ¼" cubes—and have two hopes for them: one is to photograph them so your readers can see what they look like; the other is to mount them in something similar to Ward's bioplastic. The latter project seems doomed to failure unless I can shrug off my laziness and inquire of Ward's whether they would do it; I've experimented a little with the home preparations and have had bad luck. Any suggestions?"

A nice six-inch doubly terminated rock crystal, and a beautiful rutilated quartz cabochon (colorless quartz containing slender bronzy xls of rutile) have been donated by the Ken Dor Rock Roost (The McClures), 419 Sutter Ave., Modesto, Calif. Both specimens come from an old Gold mine at Placerville, El Dorado Co., Calif.

The following item was sent in by another anonymous contributor:

"In Bulletin 166, published by the California Division of Mines in San Francisco, Calif., under the heading "Geology of Lower Lake Quadrangle" there appears the following statement—"Large scale replacements of diabase by pectolite may be seen about 1½ miles North of Middletown, (Lake Co., Calif.), just beyond the northern most corner of the Collayomi Grant. Here a diabase sill forms a cliff along Putah Creek; a 40-ft. thickness of the sill is exposed, to its upper contact with intruded shales. The fine-grained diabase is strongly and intricately veined with white pectolite, which locally forms large irregular masses. To the East, *a dike of pure white pectolite extends several hundred feet and reaches a maximum width of about 30 ft.*" This pectolite is very hard, nicely striated, free from fibrous spikes, and takes an excellent polish when cut into cabachon, ashtrays and bookends."

COLORADO — A most interesting specimen of small canary-yellow xls of carnotite on a reddish sandstone has been sent us by Pat Fancher, Ouray, Colo.

"The specimen comes from Calamity Mesa, Mesa Co., Colo. I found the xls in only two spots, about 100 feet apart. One is on red uranium-bearing sandstone and one is on black roscoelite-type ore. The latter are beautiful with the yellow "fish eggs" (carnotite xls) on black. I have several small ones."—letted dated June 29, 1954, from Mr. Fancher.

CONNECTICUT — Paul A. Bock, 1 Oak St., Willimantic, Conn., dropped into our office a few weeks ago for a little visit, bringing with him some minerals that he recently collected. Two of the specimens he gave us—both were from the famous Gillette pegmatite quarry, Haddam Neck, Middlesex Co., Conn.

One specimen was part of a large beryl xl in 2 colors—green and pink, both partly gemmy. The gemmy pink is known as morganite. Tiny dark greenish tourmaline xls were imbedded in the morganite.

The other specimen consisted chiefly of dark smoky quartz in which were imbedded a nice xl of greenish manganapatite which fl. yellow under long wave light, small colorless muscovite xls; tiny slender green gemmy tourmaline xls, and rough xl masses of black opaque tourmaline.

The following item was sent in by Robert R. Kirkland (Adventure Gateways), 96 Tyler St., East Haven 12, Conn.

"Thin veins of deep purple fluorite occur in the Branford granite-gneiss exposed in excavations at the southeast side of the New Haven Municipal Airport in East Haven (New Haven Co.), Conn. The fluorite occurs associated with quartz in what is apparently a crush zone in the granite-gneiss adjacent to the Great Fault between the Triassic arkoses and the crystalline. On the northwest side of the same airfield in steam shovel excavations it has been reported there is an occurrence of malachite in the Triassic traps and sandstones. The writer has not verified the malachite report."

DELAWARE—Black, cleavable masses of hypersthene can be found in Talleyville, New Castle Co., Del.

FLORIDA — Last February we had some correspondence with Dr. William Guild, Director of the Science Center, St. Petersburg, Fla. In his letter of Feb. 18, 1954, he writes:—

"An extremely interesting fossil (the Tampa Bay Geodes so-called) described by James G. Manchester in your Dec. 1941 issue as chalcedony pseudomorph after coral are found here (in Hillsborough Bay, near Tampa, Hillsborough Co., Fla.) and according to Dr. W. F. Foshag, Head Curator of the Dept. of Geology, U.S. National Museum, Washington, D. C., they are unique.

"I have one specimen which contains a liquid and it has been buffed off so that when held to the light the bubble of air can be seen moving as the specimen is tilted. Dr. Foshag tells me that so far as he knows there has been no quantitative analysis made of this liquid. Here is his letter, dated Feb. 10, 1954:—

"The Tampa Bay geodes containing water are *unique* in that the geode is

made up of silicified coral. Other geodes, found in the steam cavities of old lavas, are found in other localities, especially southern Brazil and Uruguary. These are called enhydros.

"The liquid enclosed in the geodes of Tampa Bay is Tampa Bay water which has seeped into the cavity after the coral was solidified. As far as I know, there has been no quantitative chemical analysis made of these waters."

Naturally I do not want to destroy my specimen just to find out what the liquid is, if there is any authentic information on the subject. Would you or any of your readers know of any work that has been done on the liquids found in the geodes of Tampa Bay?"

The locality for the above geodes is Hillsborough Bay but is often called Tampa Bay.

GEORGIA — The following item appears on p. 48 of GEORGIA MINERAL NEWS LETTER, (Spring 1954), published by the Georgia Geological Survey (Dr. A. S. Furcron, Editor, 425 State Capitol, Atlanta, Ga.).

"Magnetite (lodestone) was brought in by Seymour F. Dozier, Red Oak, Route 1, Fulton County, Georgia. Large lumps of this material can be picked up on land lots, 199 and 200, 10th Land District, six miles northeast of Greenville (Meriwether Co., Ga) on the Greenville-Rocky Mount Road where specimens suggest that it has weathered from quartz-mica veins."

IDAHO — Our good friend, G. Elmo Shoup, Mines and Minerals Consultant of Salmon, Idaho, sends in another report on his section of the country.

"After so many months of not writing to you, I may have to get back on the beam by throwing in my hat. With all the new strikes and the old ones being restaked and recorded (meaning Mining Claims lode quartz), for the thorium and uranium minerals, my hat is way out of the ring at this time.

"A strike of good uranium (autunite) has been made near Gibbonsville (Lemhi Co.), Idaho, about 34 miles north of Salmon, and the country is already well staked. The Claims of Dean and Mathus was the point of the excitement, and they sold to some outside capital for a good price. I have not entered the district with any claims but I was the first to go down to their claims this summer and advise them where to do their work and show them where the radioactive material would be likely to be heaviest. The Moon Mine, a property owned by Mr. C. Walker Lyons, is located below. The Moon Mine was an old mine belonging to Anderson, an old timer of the Gibbonsville District, who worked the Mine for gold and silver.

"The Agency Creek, McDevitt District, Lemhi County, Idaho, radioactive ores (found in that District in 1947 by me) has seen renewed activity this spring and summer. Every foot of ground in the District is being located and cars are coming in from all parts of the country, especially southern Idaho and Utah. Since my Buffalo Radioactive Property sale, very few others are being dealt on, but the prices the boys ask for their prospect run up into the $100,000.00 bracket."

ILLINOIS — As time marches on, one by one of the famous mines of the country close down, some never to be opened again. This time it's the fluorite mine at Rosiclare, Hardin Co., Ill. The closing of this great mine was called to our attention by B. E. Clement, Box 69, Marion, Ky. In his letter, dated July 22, 1954, he writes:—

"Here is a clipping that may be of interest—the closing of the Dean of Fluorite mines—the great Rosiclare. It is with regret to those of us who have lived near this great mine.

"Rosiclare was opened in 1842 to mine lead as fluorspar (fluorite) was of no value then. Just a little was used in glass and some smelters. Out of Rosiclare came millions of tons of fine ore and millions of fine specimens. It is a pity so few specimens are now to be found."

The clipping reads:—

Fluorspar Mine at Rosiclare Closes After 100 Years

It was announced today by resident officials of the Rosiclare Lead and Fluorspar Mining Company that the Company's

mines and mills which have operated here continuosly for almost a hundred years, were completely shut down May 1, 1954, and all operations ceased, for the time being. However, shipments of finished fluorspar, out of the Company's inventories, are to be made in accordance with customer's shipping orders.

The close down was effectuated in order to give the resident officials of the Company an unhurried and mature opportunity to review the operations and affairs of the Company and of the fluorspar industry in general, and further as an alternative to its own operations to consider the possible sale of its properties to a company which has manifested an interest in the possible acquisition of the properties of the Rosiclare Lead and Fluorspar Mining Company.

"It is hoped," said these Company officials, "that some clarifying conclusions and decisions may be reached within 60 days, in the interest of all concerned—the Company, its employees and the community of Rosiclare."—Hardin County Independent, Elizabethtown, Illinois."—The Crittenden Press, Marion, Ky., Fri. May 14, 1954.

INDIANA—While browsing thru the October 1953 issue of the NSS News, official journal of the National Speleological Society (Samuel Davis, Bus. Mgr., 10 Heiser Ave., Trenton, N. J.), we saw an interesting item on Marengo Cave, the 2nd largest cave in Indiana. According to the item, a French speleologist, Roger Seronie Vivien, discovered recently some pallettes in Marengo Cave. A speleologist is a cave explorer, and a pallette is an unusual cave formation. The writer of the item, George F. Jackson, has this to say about Marengo Cave, which is in Crawford County in southern Indiana (near Marengo).

"Marengo Cave is the second largest cave in Indiana and was discovered in 1883, and has been commercialized ever since. Although far smaller than the largest cave in the state (Wyandotte) it has some of the most beautiful formations in the country. It is one of the few large caves that the writer has seen which has a naturally smooth floor. Along a large area of one passageway are "ripple marks" which—according to the late Professor Clyde A. Malott—were left by the original cave river."

IOWA — Michael Papcun, RR1, Melrose, Iowa, has found some nice banded red agates in his area. Melrose is in Monroe County in southern Iowa.

KANSAS — Pink celestite xls have been found in limestone 4 miles N/W of Morrill, Brown Co., Kansas.

KENTUCKY — The following note was sent in by B. E. Clement, Box 69, Marion, Ky.

"The first company in the Kentucky-Illinois area to operate a mine was formed in 1835 and headed by Pres. Andrew Jackson. This company mined lead at the Columbia Mines, 7 miles S.W. of Marion (Crittenden Co.), Ky. The Clerk's Office here at Marion shows 24 Grantee deeds to Jackson and his family. They are in handwriting and beautiful penmanship. R. P. Davidson, the able and likeable Clerk, will gladly show anyone who calls at the office.

"Most mines here in the Ky-Ill. area are now closed due to foreign ore taking the market. Few specimens now come out or can be found. I still have my great collection.

"Since you were here (the Editor visited him in October 1947) I have doubled my collection. I wish you could see my fluorite colors—not equalled (collectors tell me)—in any place in the world."

LOUISIANA — T. E. Bryant, Junction City, Ark., has sent in a clipping from the July 1954 *Rural Louisiana,* titled "Volcanoes fathered new industry; bentonite now mined in Louisiana." Part of the clipping reads as follows:—

"Fire and ash belching volcanoes of 40 million years ago created an unusual rural industry in north central Louisiana. The ash is being strip mined in Lincoln parish, near Ruston, by the Filtrol Corporation of Los Angeles.

"The company is uprooting the red, red pine topped hills and scooping up a soft porous volcanic residue. Called, 'Benton-

ite' and named after Thomas Hart Benton, an ambassador-stateman of Montana where the valuable volcanic ash was first discovered, the product has hundreds of uses.

"J. D. Holbrook, mining superintendent, says bentonite is, first and foremost, a catalyst for many chemical processes. It is also a basic ingredient in many filtering processes. So powerful are its absorbing qualities a grease spot in cloth will disappear when dusted with the refined bentonite powder. Bentonite will also take the oil from the skin, leaving hands dry and chapped.

"Needless to say, the unusual natural product is a basic ingredient in cleaning fluids, oil filters on engines, etc. It is also used in the processing of fats, vegetable oils and petroleum to take out impurities. Those are just a few of its many uses.

"In appearance, bentonite is a sort of greyish black—about the color of Lava hand soap, which it resembles. On first coming out of the earth, it is pliable, something like modeling clay—very moist. In fact, Mr. Holbrook says it is 45 per cent water. However, bentonite soon dries out, leaving a brittle and powdery substance that will not cleave again when put into water.

"The best way to describe this new Louisiana product, perhaps, is to say, 'It looks like soap. It feels like soap.'

"Mr. Holbrook confirms this by pointing out that bentonite is very similar to the substance pioneers and Indians called, soapstone. It is also a cousin of Fuller's earth, mined extensively in some Western states.

"One of the most interesting features of the industry lies in its discovery. Mr. Holbrook confirmed the rumor that a soldier on maneuvers before World War II stumbled upon a sample of bentonite while playing at war on the Hodges estate. The current operation is on the Dr. C. H. Lawrence and John W. Beck property, near Ruston.

"The soldier had been employed by the Ultapulgus Clay company in Mississippi when they opened their first bentonite mine in 1935. He recognized the substance and reported it to the company,' Mr. Holbrook explained.

"Served by the Claiborne Electric co-op, the mine employs 15 men. About 34,000 yards of earth are moved per month to mine four to 5,000 tons of bentonite, proving that it must be a valuable property."

MAINE — In the March-April 1954 R & M appeared an item on the finding of Wolframite at Blue Hill Falls, Hancock Co., Me., by William P. Hinckley, RFD 3, South Brewer, Me. Wolframite (and molybdenite) were reported by Dana as occurring at the Camdage Farm near the tide mills (Dana 6th Ed. p. 1054). The new 7th Edition states this in reference to the molybdenite "Found in Maine at Blue Hill Bay and Camdage farm in large crystals," etc. Vol. 1, 1944, p. 330. We called Mr. Hinckley's attention to these items as Camdage farm is also in Hancock County. Here is his reply, dated Feb 13, 1954:—

"In regard to the location of the Wolframite on the Camdage Farm near the Tide Mills, I can only say that I believe this to be the same place (Blue Hill Falls). Dana's System—still lists this location for Molybdenite I note. This is not nearly so definite as it would seem. First of all it appears that the name got twisted by typographical error to Camdage instead of Candage. The Candage family was among the first settlers of the town, arriving there about 1765. As was often the case in those times large families sprang from every branch of the original family, and they all seem to have remained in the section of town known as 'The Tide Mills or 'The Falls.' I believe that most of the property in that area has very likely been owned or occupied by some family of that name at some time or other.

"We found our wolframite by following very scanty directions given by Dr. Charles Jackson in his report of the state geologist This refers to a 'mountain' where there is none, but states that it occurred in granite near where it intruded the gneiss. Knowing he was traveling by boat I picked the only place he could consider to be a high hill from the water

and sure enough there was a sharp change from the country rock to a granite hilltop. Since Blue Hill was for many years ' a granite town' this hilltop has been prospected for commercial stone since the visit of Dr. Jackson about 118 years ago. Almost the first thing we found a fleck of molybdenite in some rubble and then a vein of wolframite with arsenopyrite in a large slab blasted free of the ledge. Molybdenite plates an inch across were later found 100 yards away. Further hunting has yielded only a few specimens of both, but the area is good for a lot more hunting.

"Dr. Jackson reported finding and describes specimens collected for the State Museum of crystals of grass green fluorite, crystals of quartz, and of molybdenite collected on an island in Blue Hill. The state no longer has a museum, and I do not know what happened to the specimens. Anyway we expect to have a darn good try at that island this coming summer. The only trouble is that the island is nine miles long and about two miles wide. The only hints are that it is near the middle of the island in veins as much as eight inches wide; it is found on the shore and apparently runs all the way across the island.

"I am told that the Smithsonian Institution has a beautiful rhodonite specimen from this town also. No one seems to know anything about it today, although there was once a manganese mine there.

"In the same way that the 'Camdage Farm' got lost another 'Osgood Farm' appears in an old handbook reporting azurite outcrops in the pasture. Three Osgood brothers took up lands adjacent to one another in early years, and then they proceeded to have large families. Then along came the copper mining boom about 1880 in that town. That probably was one of the first places blasted open. Today the location might be any of a lot of places, and nobody seems to have the slightest idea where it was found. Azurite did not make up any appreciable part of the copper ores mined in Blue Hills."

MARYLAND—Some few months ago we received a number of specimens from Ray Garst, Rt. 1, Frederick, Md. His letter reads:—

"I am mailing you some specimens from our farm which is one mile northwest of Libertytown, Md., on Route 550. Also some from the Liberty copper mine."

The Liberty copper mine is 1½ miles northwest of Libertytown (Frederick Co., Md.), on the Coppermine Road. Among the specimens received was a nice specimen of white cleavable barite encrusted with green malachite; it comes from the copper mine.

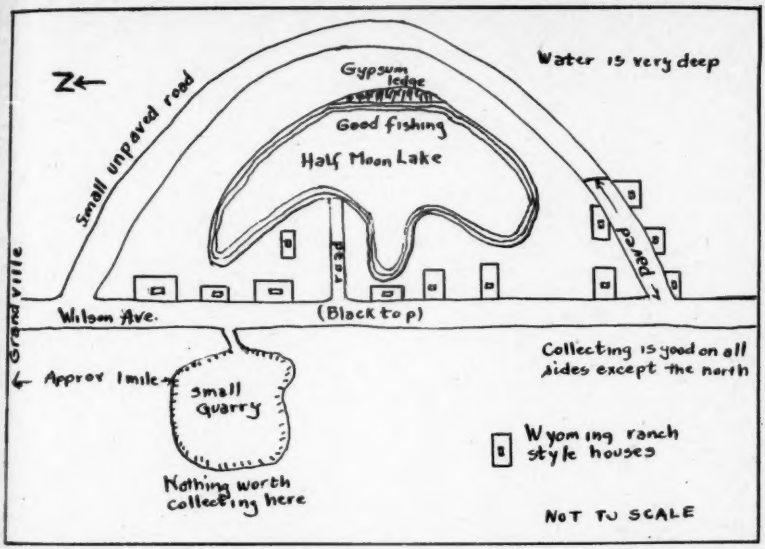
MASSACHUSETTS — Pollucite, as clear and colorless grains was discovered in the autumn of 1940 by Prof. B. M. Shaub at the site of the well-known Barrus pegmatite in Lithia, Hampshire Co., Mass. Associated with the pollucite were quartz, spodumene, tourmaline, cleavelandite, muscovite, cassiterite, columbite, and goshenite. In the spring of 1946, a boulder containing 25 to 50 pounds of pollucite was located at the site. The surface of this boulder, about 2 to 2½ feet in diameter, contained an exposed mass of pollucite occupying approximately ½ square foot in area. In the July-August 1954 AMERICAN MINERALOGIST (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.), appears the following article "Pollucite from Lithia, Massachusetts," by B. M. Shaub and B. J. Schenck, Smith College, Northampton, Mass. (pp. 661-664).

MICHIGAN — The following item comes from Don Knowles, 3906 Canal, Grandville, Mich.

"Here is something for World News on Mineral Occurrences. Different forms of gypsum occur in the Wilson Ave. quarry—alabaster, satin spar and selenite (clear masses and rarely xls and pencil type which is quite showy). The quarry has long been filled with water and is now known as Half Moon Lake. All the minerals listed are found on the banks.

"The quarry is on the east side of Wilson Ave., about a mile south of Grandville, Kent Co., Mich."

MINNESOTA — Smoky gray masses of bytownite (feldspar) occur in the



Map showing location of Half Moon Lake (old Wilson Avenue quarry) about 1 mile south of Grandville, Mich.

Crystal Bay quarry at Crystal Bay, Hennepin Co., Minn.

MISSISSIPPI — C. O. Diffey, Rt. 1, Box 92, Kokomo (Marion Co.), Miss., has sent in an interesting red oolitic quartz pebble which he had collected in his area.

MISSOURI — The following was received recently from A. A. Castile, of Associated Miners, 6972 Sheridan Rd., Chicago 26, Ill.

"In the Jefferson and Washington County barite (tiff) district of Missouri where my family operated mines when I was a child, clusters of rather large and often colored quartz crystals were rather common. The most fertile area was adjacent to Vineland (Jefferson Co.), both north and south of Big River. The clusters, identical to the 'Rock Blossom' now common in the area but with much larger crystals were standard mantle-pieces in every home. I do not recall amethyst. Citrine was frequently noted.

"A few years ago when barite mining was resumed on an enormous scale (which is current), I was back in the district, in contact with some of the older native French miners, and inquired about this geode (blister) quartz. Several of the men recalled it well. But they said the visible supply had been stripped during depression years and trucked to St. Louis as garden rock; that the geodes had been found on or near the surface, and such as may remain are covered with tons of strip-mining debris.

"While doubtless of the same occurrence in time, the large crystals were in geodes up to 3' in diameter and the drusy 'Rock Blossom' is cave and seam lining.

"Mining in this area extends back to the earliest Spanish and French. Provincial French remains the common tonque in some families, particularly around Cadet, Mineral Point, and other small towns adjacent to Vineland and De Soto—where the explorer is, by legend, said to have built the boats in which he embarked on his ill-fated trip down the nearby Mississippi."

MONTANA — Very nice masses of chalcopyrite have come out of the Argo mines, Hellgate Canyon, Lewis & Clark Co., Mont.

NEBRASKA—Nodular masses of marcasite occur in the limestone quarry near Louisville, Cass Co., Nebr.

NEVADA — In the last issue huntite was described as coming from Nevada but unfortunately the locality was missing. The locality is the Ala-Mar Magnesite Deposit, Nye Co., Nev. We sincerely regret the omission of the locality.

The nation's newest copper mine—a huge open pit workings at Weed Heights, near Yerington, Lyon Co., Nev., should be producing some nice specimens. We would appreciate reports of findings, if collectors visiting the locality would send them in. The new mine in owned by the Anaconda Copper Mining Company.

NEW HAMPSHIRE — Nice small xls of limonite pseudo after siderite and associated with smoky quartz, microcline and fluorite xls were found some few years ago in large boulders near Connor Pond, Ossippee, Carroll Co., N. H. The finder was Horace W. Slocum, 11 Central Ave., Rochester, N. H.

NEW JERSEY — Reports have it that the world famous New Jersey Zinc Co. mines at Franklin, Sussex Co., N. J., are to be shut down and abandoned in the very near future—perhaps even before this issue makes its appearance. Reports further have it that the property and all company buildings will be offered for sale. Wish some wealthy individual would buy the mine and establish it as a memorial to mineral collecting. If we had any influence we would petition the State of New Jersey to do this.

NEW MEXICO — C. O. Gettings, 2001 Starr Ave., Toledo 5, Ohio, recently sent in this item:—

"For your news items. Some very choice specimens of aurichalcite are being found near Socorro (Socorro Co.), New Mexico. Many are covered with calcite and are a treat under a microscope."

NEW YORK — One of our good friends is Dr. Frederick H. Pough, 4680 Independence Ave., New York 71, N.Y. When we heard that he had found amethyst in an excavation on his street (it was for a house and we believe across the street from his home) we wrote him about it, stating that as far as we knew this was the 2nd find of amethyst in New York City. The first find is mentioned in "Minerals of New York County," by B. B. Chamberlin, Rep. Trans. N. Y. Acad. of Sciences, Vol. VII, No. 7, New York 1888 which reads:—

"*Amethyst.* Limped quartz prisms with pyramidal caps of amethyst similar to specimens from Transylvania, some of the caps were ¾ inch in diameter and were removable, 59th Street, Sixth and Seventh Avenues." (p. 13).

Here is Dr. Pough's reply, dated July 7, 1954:—

"I was glad to get the Chamberlin reference, as I haven't had time to go through the literature to see what other amethyst has shown up in New York. I had Harry Howard cut a few stones, the largest still under a carat, just for the fun of it. The amethyst occurred in an iron-strained vein in decomposed Fordham gneiss, dipping east at about 45°, and was the only solid material in badly weathered stone that was so soft it could be dug out with a shovel and pick. It was not until the specimens had been cleaned up in oxalic that their color was apparent, though I realized it was amethyst when I saw the first piece, I could get an impression of violet under all the iron stain on the surface. It cleaned very easily. The kids had quite a time digging it out for the next few days and there was more in the vein but it didn't seem worth going down any further in the cellar hole for more. The house is now half built and the cellar all cemented over, so the locality has no future!"

David J. Brison, 7 Elm Lane, Bronxville, N. Y., sends in the following report:

"I thought you might be interested to learn about some specimens I acquired from the diggings for a new house across

the street from us.

"One was a very nice group of rather large tremolite xls, which had been slightly weathered.

"The other was a piece of red jasper in the shape of a heart and measured 4 x 3 x 1 inches."

Bronxville, in Westchester County, is only a few miles north of New York City.

NORTH CAROLINA — On a recent visited to North Carolina by James R. Gudger, M. D., 144 Langdon Ave., Irvington, N. Y., a number of localities were visited. One locality was a limonite mine in Caldwell County, situated on the headwaters of Yadkin River (about 15 miles north of Lenoir) where some nice little pyrite cubes in dark green chlorite schist were collected. Specimens seen resemble those from the abandoned talc mine at Chester, Vt.

NORTH DAKOTA — From S. T. Parke, Sterling, N. D., we have received a small section of a diamond drill core that comes from the Moffit oil well located 3 miles south of Moffit, Burleigh Co., N. D. This is a 3½ inch diam. pinkish compact limestone.

OHIO — The following interesting report comes from Aloysius J. Gruss, 11309 St. Mark Ave., Cleveland, Ohio. It is dated April 16, 1954.

"This letter is written with a good deal of happiness because Ohio holds a new gem in the offering. This new find is rose quartz and it was found near Cleveland (Cuyahoga Co.), Ohio. It was found on Ridge Road, not far from the west side. The four pieces before me are of a rich clear pink gem quality and it comes from North Royalton, Ohio. It is massive, crystallized, and shows signs of star formation."

A later letter, dated June 5, 1954, reads:—

"I received your fine letter and followed directions about my rose quartz being confirmed. The Secretary of the Cleveland Lapidary Society agrees it is rose quartz and says it is of good color."

OKLAHOMA — Beautiful specimens of doubly terminated pale golden calcite xls, which fluoresce green under the Mineralight, have come from the Lucky O. K. mine at Hockerville, Ottawa Co., Okla.

OREGON—Cristobalite as small white xls in andesite, have been found on the south side of Union Peak in the Crater Lake National Park, Klamath Co., Ore.

PENNSYLVANIA — G. J. Gelston, Box 83, Torrance, Penn., sent in recently two petrified wood specimens from his state. They are the nicest petrified woods we ever saw from Pennsylvania. One specimen is a light brown limb section with light gray chalcedony center; the other is the same but has a dark gray chalcedony. The specimens are small, 1 inch diam. and ½ inch thick.

"Am sending a couple pieces of petrified wood I gathered up in a local corn field where it is quite abundant; so far as I can determine there is none elsewhere close by. It seems to be in this one spot of possibly 20 to 30 acres on the farm of Clair Forshea, a mile or so northeast of the small town of Millwood, Westmoreland Co., Penn. Arrowheads have been found chipped from this material.

"I have a little to swap, so am enclosing ad for insertion in the classified section"—letter dated July 26, 1954, from Mr. Gelston.

A few weeks ago Floyd R. Faux, 635-4th Ave., Bethlehem, Penn., was a visitor at the offices of R & M., and as is his custom, he again brought a number of specimens for us. One of the specimens was a light tan xled mass of aragonite which he had collected in an underground lake under Delaware Avenue, Fountain Hill, in his city of Bethlehem, Northampton Co., Penn. The locality sounded most interesting and we had to get details on it. Here are the details.

When a street was excavated recently for a sewer line in Bethlehem, a cave was struck and Mr. Faux was notified who entered and explored it for a long distance. The passages (all in limestone)

twisted and turned with numerous passages branching off in all directions. In one passage he found a pool of crystal-clear water—so cold as to numb the hand if immersed (a thermometer was inserted and it read 42°). The surprising feature about this pool was that it was lined with aragonite—no aragonite showed above the water—only underwater. In trying to get out specimens from the pool, Mr. Faux's hands got numbed.

Our specimen comes from this unique locality and we value it highly.

RHODE ISLAND — Black tourmaline occurs in small veins in green schist 200 feet north of the main mine on Copper Mine Hill, Providence Co., R. I.

SOUTH CAROLINA — A mass of grayish, fine grained topaz forms a large outcrop as part of the gold-bearing lode at the old abandoned Brewer Gold mine near Jefferson, Chesterfield Co., S. C.

SOUTH DAKOTA — Cummingtonite occurs around quartz as radiating blades or fibers, brownish or greenish-gray in color, in the Homestake gold mine, Lead, Lawrence Co., S. D.

TENNESSEE — Celestite in whitish aggregates up to 1½ ft. in diameter, occur in limestone in Fentress County, Tennessee (near Jamestown). The celestite give the appearance of snowballs spattered against the limestone.

TEXAS — The following letter, dated June 24, 1954, comes from W. T. O'Gara, 1937 Hurley Ave., Ft Worth 4, Texas.

"I am sending you some sand samples taken on a field trip the Texas Tech. Geology Dept. took last Easter Holiday. We assembled at Van Horn (Culbertson Co.), Texas, where we saw a mica pegmatite at a place called Micolithic, where mica was mined during the War. Nothing is mined at present. We then went south to a place called Chispa, on the main line of the Southern Pacific R.R., and turned westward toward the Rio Grande. There is an old abandoned coal mine (in Presidio County) at San Carlos (now no longer inhabited) where excellent ammonites are found in the upper Cretaceous (Taylor fmn.). I want to write that up for the R & M fossil dept. The scenery was magnificent and I took many Kodachrome pictures of the ash to tuff beds of late Tertiary age. It's mighty scenic.

"We finally turned south and after digging various cars out of the various creek bottoms we all had lunch and set out to hunt ammonites and oil concretions. It's a place that you shouldn't visit alone, because if you got stuck in the sandy creek crossings you would have a long walk back to the main highway. It's dry as bone also except for flash rains which are seldom so you need to carry ample water supply. If I had been more active and better able to climb around I would have gotten you some very good concretions but the students got the best and so I was out of luck. I had to carry a heavy load of ammonites to the car and just about made it.

"We then got back to the main highway and headed south for Marfa, Texas. We turned towards Terlingua from there and were on our way to the Solitario, a large domed structure on the border of Brewster and Presidio Counties. We spent the night camped at a place called Wiregap, near Toscotal Mesa and hunted for agates in the morning. You have to do a lot of looking to find good ones but they are there in the Tertiary tuff and beds that make up the mesas. We spent the day at various thrust faults and other phenomena when we arrived at the Solitario and got nicely sunburned. We camped there the night and next day toured other interesting sights. There is everything from Ordovician to the Cretaceous included in the uplift, and for the students who could see nothing but the monotonous flat 'Cap Rock' at Lubbock, Texas (home of Texas Tech.), it was a revelation.

"From the Solitario we went back to Alpine to spend the night and unfortunately I couldn't see Frank Duncan, as he lives some few miles south in Terlingua. Bought a few agate slabs from a lapidary but he didn't have too much. So through Fort Stockton to collect Cretaceous fossils and on back to Lubbock.

"I can verify the statement that there

is 'nothing but miles and miles, of nothing but miles and miles in West Texas.'

"I hope the specimens sent you will prove interesting."

Nine sand samples and many pebbles were sent in by Mr. O'Gara. From Toscatal Mesa in Presidio County, Texas, the pebbles were either of gray chalcedony or showed veins of gray chalcedony. Another interesting specimen was a brownish amygdaloidal basalt pebble whose amygdules were rounded grayish chalcedony, Still another was a brown and black 2 inch pebble, the black was dark gray chalcedony which was so dark and opaque as to resemble basanite.

Some pebbles from the basal Cretaceous conglomerate were also received. These come from the center of the Solitario, on the Brewster-Presidio county line of Texas. One was a reddish-brown conglomerate which showed red jasper pebbles; another is also reddish-brown but is full of small gray chalcedony pebbles.

UTAH — Howard V. Hamilton, 115-B E. Adams St., Vandergrift, Pa., specializes in celestite. While on a recent visit to Utah he had an opportunity to visit a celestite locality and here are his notes on it.

"The celestire is in white, pinkish and red, and sometimes in colorless xls. They are found in pinkish dolomite concretions which occur in shale in Salina Creek Canyon, about 5 miles east of Salina, Sevier Co., Utah. The concretions run in large sizes, over one foot in diameter, in bands in the shale on a hillside. This is an outcrop only—no quarry."

VERMONT — Mrs. Anna P. Walbridge, 520 Elm St., Montpelier, Vt., has sent in a copy of VERMONT LIFE, the official publication of the State of Vermont (Montpelier, Vt.). In this issue, Spring 1954, is a most interesting article on one of Vermont's famous mineral localities—the asbestos mine at Eden Mills, Lamoille County. This 8 page, beautifully illustrated article, by Charles E. Crane, is titled "Vermont makes silk from Stone." The article is a fascinating story of the Nation's largest asbestos operation located on a remote mountainside of northern Vermont.

VIRGINIA — A recent letter from R. J. Baldwin, Rt. 1, Box 87, Madison Heights, Va., has this paragraph:—

"Since moving to this area in 1950 have found that this section has a lot of worthwhile minerals to interest the rockhound. To mention a few there are:—rutile, ilmenite, allanite, sipylite, gold bearing pyrite, mica, feldspar, garnet, barite, copper, soapstone, talc and others. If you want to reach out 50 or 75 miles you can include beryl, amazonstone, spessartite, lead, zinc and tin ores. Some of these are old mine dumps and others are still in production. My advice is to get permission before entering any of these localities."

WASHINGTON—Naumannite, a silver selinide, occurring in black metallic bands alternating with bands of milky crustified quartz, has been found in ores coming from the gold mine at Republic, Ferry Co., Washington. R. M. Thompson, University of British Columbia, Vancouver, Canada, found the mineral in 1949, while cataloguing some specimens which had been previously donated to the University. A description of the mineral, "Naumannite from Republic, Washington," by Mr. Thompson, appears in the AMERICAN MINERALOGIST, May-June 1954, p. 525 (Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

WEST VIRGINIA — Hematite has been mined in Grant County, W. Va., near Greenland Gap.

WISCONSIN — The following letter, dated July 26, 1954, comes from John M. Krogstad, Pepin, Wisc.

"We are living in the center of an area where Lake Superior agates and carnelians are found. This area extends from the north shore of Lake Superior along the eastern border of Minnesota and western Wisconsin through Iowa and Illinois along the Mississippi river.

"I began hunting agates and carnelians about 65 years ago and have probably picked over 2000 pounds of them in the gravel beds in the area mentioned. We

find no pieces alike, some are quite clear in color of different shades. Most all of them are banded, some fine and thread like, others coarse banded and in many mixtures of colors.

"A good collection of Lake Superior agates will be admired by all Rockhounds."

WYOMING — Large black to pink fragments of chalcedony are scattered on the north side of Como Bluffs anticline in Carbon County, Wyoming—from "A Mineral Collector's Guide to Wonderful Wyoming" (published by Gritzner's, 135 N. Sirrine St., Mesa, Ariz.—25¢. A very fine publication; send for a copy).

AUSTRALIA — The following item, dated April 2, 1954, comes from Kelvin Green, Y.M.C.A., Edward St., Brisbane, Queens, Australia.

"A new type of opal is taking the market by storm and fortunately I was able to get hold of a fairly large piece of it in the rough in the earliest stage of its marketing. It is now worth about twenty times what I gave for it. The opal is from a South Australia field called Andamuka. A piece was made into a jewel and given to the Queen on her recent arrival in Adelaide. It is not a 'Black' opal but a light coloured one but it is of all light coloured opals the most beautiful. Where no other colour shows there is not glass-clear colourless stuff nor grey, cloudy material but instead a very lovely pale lilac fire fills in the gap. Golden fire is plentiful in it. The pieces are quite thick and solid. I have come happily to the conclusion that it is wise for a mineralogist to know opal."

AUSTRIA—A nice specimen showing lustrous black xls of magnetite in dark green chlorite has been received from Werner Lieber, Hubschstr. 24, Karlsruhe, U.S. Zone, Germany. Mr. Lieber collected the specimen in Stubachtal, Hohe Hauern Mts., Austria.

CANADA—A beautiful lustrous mass of molybdenite on massive pyrite was sent us by John W. Edwards, 305 Avenue Road, Toronto 5, Ont., Canada. The specimen was found in altered pyroxenes at the Zenith Molybdenite Mines, Renfrew County Ont., Canada.

ENGLAND — The following paper "On the occurrence of the rare copper molybdate. lindgrenite, at Brandy Gill, Carrock Fell, Cumberland (England)," by A. W. G. Kingsbury and J. Hartley, was read at the June 10th, 1954, meeting of the Mineralogical Society of Great Britain. The meeting was held in the apartments of the Geological Society of London, Burlington House, Piccadilly W. I, London, England.

"The occurrence of wulfenite and stolzite among material from an old trial-level on the east side of higher Brandy Gill, Carrock Fell, together with pieces of veinstone, indicated the presence of intersections between an east-west lead-copper vein and one or more of the 'granitic' suite of veins that further south in and near Grainsgill carry tungsten and molybdenum minerals. Futher careful examination has revealed the presence of small amounts of lindgrenite, hitherto not recorded in Great Britain."

GERMANY — A group of amber-yellow calcite xls lining a cavity of a quartz geode was another specimen received from Werner Lieber, Hubschstr 24, Karlsruhe, U.S. Zone, Germany. The locality for the specimen is Fischbachtal, near Idar-Oberstein, Germany.

GOLD COAST — Lustrous, prismatic, steel-gray xls of manganite in a black pyrolusite mass is an interesting specimen received from Walter McNamara, 7 Harmony St., Danbury, Conn. Mr. McNamara, a Merchant Seaman, obtained the specimen while on a recent trip to West Africa—it comes from Nsuta, West Province, Gold Coast.

MEXICO — Southern Gem and Mineral Company, 2307 North Mesa, El Paso, Texas, are continually receiving very fine minerals for their stock. Some recent arrivals were large specimens of danburite from San Luis Potosi, Mexico. A letter, dated June 29, 1954, from Col. E. M. Barron, the president of the company, reads:

"Dr. Switzer, of the Smithsonian Institution, recently etched one of the danburite specimens exposing many terminated xls. Some of our specimens are

about 5 x 6 x 17 and are completely covered with large xls of danburite, many of which are at least 3" in length. As previously indicated, most of the danburite xls are coated with calcite."

PUERTO RICO — David A. Burgess, Box 6667, Loiza Strret Sta., Santurce, Puerto Rico, has been doing some collecting on the island. A recent specimen received from him which he collected at the old Spanish copper mine, Riena de Cobre mine, Corozal, Puerto Rico, was a dark red massive cuprite coated with green malachite.

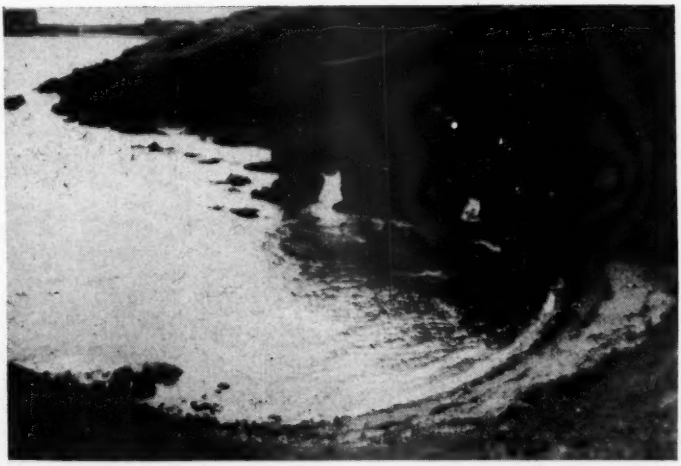
SCOTLAND — In the May-June 1954 R & M, mention was made about the Rev. Wm. J. Frazer, Moosic 7, Pa., exchanging pulpits with the Rev. William G. Tran of Forfar, Scotland, (p. 226). Rev. Mr. Frazer is a mineral collector and even before leaving USA he had contacted Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland. They have met, are good friends, and have done some collecting. Here are some items from Sandy's letter, dated Aug. 13, 1954 (all localities mentioned are in Scotland):

"Well our vacation trip was the same as last year's but we did take in a few extra places. We took Rev. Mr. Frazer and his daughter, Sheila to the Elephant Rock, agate hunting. I took a photo but the steep climb up must have blurred my vision a bit, because the picture is a little out of focus—but will send it anyway so you will get a wee idea of what it's like.

"We took the Pastor and his family to St. Cyrus, where the Minister had a happy time hunting for agates on the cliffs; the family picnicked and had a grand time on the fine sandy beach—and bathing, which Neil enjoyed.

"Just before going up to see the Minister at Forfar, Boylestone quarry turned up a new one for the locality—quartz xls with native copper. Rev. Mr. Frazer got the best specimen that I found. I found also a small vug filled with drusy quartz xls and some platy barite xls. This mineral, though one of the commonest in Renfrewshire, has never been found in Boylestone before."

SPAIN — Juan Montal, Plaza Sgdo. Corazon No. 1, Villafranca del Panades, Spain, has sent in another specimen from his country. This specimen consists of greenish-gray slender xls of pyromorphite



Collecting agates at Elephant Rock in Scotland. The tiny figures on the beach are Rev. Wm. Frazer, daughter Sheila, and Alec Galt.

Photo by Sandy Ramsay

on massive smoky quartz. The locality for the specimen is Santa Eufenia, Cordoba Province, Spain.

SWEDEN — From the fluorite mine at Gladsax, 5 kms. west of Simrishamn, Skane Province, Sweden, we have a grayish cleavage of calcite that fluoresces red under the long wave lamp. The calcite was sent in by the Swedish collector, Gerhard Koppen, Skanegaten 3, Nybro, Sweden.

NOVICE COLUMN

In the Sept.-Oct. 1953 R & M, Gordon ViGario, 2231 Pine St., Bakerfield, Calif. suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember the novices do not know one mineral from another, so please be as helpful as you can.

The following is the sixth list of novice collectors.

Edward Goods, 49 Oak Court, Snyder, New York.

Ann Tevis, 55 Broad St., Stroudsburg, Pa.

Irving Berenzweig, 986 Leggett Ave., Bronx 55, New York.

Mrs. A. L. Mumford, Ferris Lane, Nyack, New York.

Arlie Kline, Onekama (Manistee Co.) Michigan.

Mrs. Celeste Carter, 15084 Washburn Ave., Detroit 38, Mich.

Joseph Kish, 439 East 12th St., Northampton, Penna.

Miles A. Stybr, 1102 Wisconsin Ave., Oak Park, Illinois.

Donald Langlois, 22 Vick Park "A," Rochester 7, New York.

James Lee Brashear, 3816 Earl St., Fort Worth 11, Texas. (Age 11 yrs).

Roger Young, 1787-16th Ave., San Francisco 22, Calif. (Age 11 yrs).

Mrs. Gladys Bohlke, 33 North Madison Ave., Spring Valley, N. Y.

Mrs. Earl Keene, 15 Center Ave., Reading, Massachusetts.

Miss Hazel Forbess, 1331 South Coachman Dr., Whittier, Calif.

James Smithson, 124 North Gunston, Los Angeles 49, Calif. (Age 14 yrs).

Jeanette Simkin, 2240 "B" Street, Eureka, Calif. (Age 13 yrs).

Mr. and Mrs. Clair Neff, RR 3, Box 214 Tucson, Arizona.

Mrs. George Eckman, 535 Douglas St., Fallon, Nevada.

Richard E. Seavey, 96 Mill St., Westwood, Mass. (Age 12 years).

EMERALDS - RUBIES - SAPPHIRES - COUNTRY HAM AND HOMINY GRITS

By Joe Rothstein, Secretary, The Lapidary & Gem Society of N. Y.
97th Street & West End Ave., N. Y., N. Y.

If there was a bell tolling the witching hour of midnight on the 17th of April 1954 we did not hear it—or if there were two lanterns in the tower of the Old North Church, we did not look up to observe their glow. The North Carolina safari of Joe Stromwasser, Lou Soland and Joe Rothstein, members of the New York Mineralogical Society and the Lapidary & Gem Society of N.Y., and Edge Goldstein, one of the stalwarts of the latter club only were tooling down the Jersey Turnpike with emeralds on their minds, hammers in their hands, the blessings of their wives for a week at least, and an itch to take down mountains. Twenty-four hours later we were in the shadow of Mt. Mitchell, peeling off the windbreakers in the sunshine, admiring the lavender of the Judas tree, the pink and white of the dogwoods, and asking Colonel Orville Hewitt, the President of the Southern Appalachian Mineral Society who met us in Asheville, "whar are them rubies?"

We made one stop enroute at the Fairfax trap rock quarry near Centreville, Virgina, where the prehnite on apophylite was recently found. The pocket is all played out, but the quarry people expect to hit the vein again. Collectors are taboo, but we were allowed to go in without hammers; take a few pictures, and look around.

First day in Asheville, North Carolina, Colonel Hewitt took us to a colored quartz location on Farmers' Hill, just north of Asheville which is on the property of Mr. Bradley, one of the members of the club. It was obviously an old Indian arrowhead site. Some wine colored and greenish colors were taken along, and we also did a little swapping with some of the local collectors. Next we went to a spar location in search of moonstone and we wound up the day in a vain search for pink corundum at the Carter Mine near Democrat, North Carolina. Here we came across our first wild rumor from the local natives. We were to be guided to a radioactive turquoise location. For a minute, four New Yorkers were wondering who were the "City Slickers."

Next day we hit the famous Cowee Creek ruby location and were well received by Weaver Gibson, one of the owners of the gravel beds. For a nominal charge which included picks, shovels, screens, instructions where to dig and wishes for good luck, Mr. Gibson started us off. We did not hit the big red stones, but got more than enough to compensate for the hard work. Carrol Gibson, one of the members of the Southern Appalachian Club, and a brother of Weaver, came down later for a little swapping. Corundum is here for the taking, if the muscles hold out. That evening, we broke out the mineral light and went over the discarded gravel in the hopes that we would walk over acres of fluorescent rubies—instead, we led a half a dozen natives over just acres. Anyway, it was a beautiful starlit, full moon night for the Tarheels to come out and see the crazy New Yorkers.

With so much corundum from Cowee Creek, we passed up Corundum Hill and headed back from Asheville the next day, Tuesday, where Colonel Hewitt had called a special meeting of the Southern Appalachian Club in our honor. First stop was at a farm near John Brender's store, which is about a mile south of Wests Mill on Route 28 and about seven miles north of Franklin. Here we found garnets which had obviously formed around feldspar crystals. This was something new to Joe Stromwasser—garnets with a six-sided hole for an axis and was one of the treasures we came away with. Next stop was an olivine quarry at Addie, North Carolina, on Route 19A. The quarry is worked for refractory material and it was interesting watching the blocks being squared off. Some translucent chartreuse colored talc was taken away as a

curiosity. The quarry people here would have gladly knocked off work to help us look if we would have found something we wanted.

That evening, in Asheville we gave a program of colored slides showing some of the quarries and mines of our area and also a promotional slide film of the Lapidary & Gem Society of N. Y., designed to interest people in the art of lapidary. This was at the very lovely home of Colonel and Mrs. Hewitt in Forest Park. We yarned some, swapped some, admired the Colonel's cellar layout (admired is the wrong word—drooled would be better), and did very well by Mrs. Hewitt's vittles.

Wednesday, we were on our way north to the celebrated Spruce Pine Area. After getting lost in the Blue Ridge a few times we got to Spruce Pine by way of the famous craft school at Penland and the north pole. We met Pender McKinney, one of the local collectors and also paid a visit to Green's mineral store. We got directions and a few bargains. Gaped over the stuff that was not for sale and came away with a memory of a warm and charming personality. Mr. Green showed us emerald crystals that had come out of the McKinney mine recently that were up to two inches long and a good three eighth's of an inch across. However, before you go running for the midnight train, let us consider apace. You will find speaks of green emerald in a spar-black tourmaline-mica matrix. Rock you will break aplenty. It is not too long a hike in—but you could look over half the county (which we did) and not find it. Then D. Collis (of the book Cabin in the Laurels) was kind enough to guide us in. Four of us banged for about an hour—or until it got dark and got some color. We staked our claims for the next day, made our plans, got down the mountain and found the brakes had gone, and by judicious tightening, we might just about limp home if we stayed on the flat. If you have the time, patience, fortitude, and a big yen—go take a crack at it.

Before we got down off the crest of the Blue Ridge that night we broke out the mineral light again at another location also called a McKinney quarry and took away massive hyalite. We had swapped for some of the delicate blue crystals in Asheville, which fluoresces light green under the light.

Going home, we made just one important stop to see Mr. B. Shepherd, the Chief Metallurgist of Ingersoll Rand in Phillipsburg, New Jersey. He has the finest collection of spheres in and out of any museum in the country and collectively, we four had thought we had seen everything. Mr. Shepherd was more than gracious in taking time out from his business day, and rolling back to our cliff dwellings in Bagdad on the Subway, we all agreed that this was the whipped cream to top off the trip.

LOOKING BACK TWENTY-FIVE YEARS AGO

In ROCKS and MINERALS - September, 1929, Issue

Marble, by Dr. Walter F. Hunt. pp. 71-72 An interesting article by the Editor of THE AMERICAN MINERALOGIST, America's preeminent mineralogical magazine (highly technical). Dr. Hunt is still the Editor and he is still with us.

Death Valley and the Borates of California, by M. Vonsen, pp. 73-77. Mr. Vonsen was one of California's most noted mineral collectors. He died on June 16, 1954.

Huge Beryl Crystals at Albany, Maine, by E. K. Gedney and Harry Berman, pp.78-80. Both young men were at Harvard University; later one of them, Professor Berman, rose to eminent heights as one of the world's foremost mineralogists but his life was cut short in August 1944 when he died in an accident while traveling abroad.

Caverns of Pennsylvania, by Eugene W. Blank, pp. 81-84. This article was written when Mr. Blank was a student at Penn State. He has written many articles for us and, is still with us.

The Mining of Gilsonite in Utah, by W. J. Fene, pp. 86-90. Mr. Fene was an Associate Mining Engineer of the U.S. Bureau of Mines.

FIND 30-FOOT FERN FOSSIL ON FARM NEAR KNOXVILLE, IOWA

By GEORGE SHANE
(Register Staff Writer)

(Reprinted from Des Moines Sunday Register, July 4, 1954)

KNOXVILLE, IA.—A giant petrified fern, which grew when Iowa was part of an immense and lush tropical jungle, has been unearthed 5 miles southeast of Knoxville.

The fern may be the biggest fossil ever found in Iowa and one of the most unusual specimens unearthed in the midwest, students who have studied the find believe.

The fern, more than 30 feet long, was found beneath coal strata in a strip mine at the 90-acre John M. Barnett farm. An examination of the fossil indicates it was one of a wide variety of huge plants which flourished here 200 to 250 million years ago.

Although broken into pieces by the weight of bulldozers working overhead during the strip mining operation, the petrified fern has now been reassembled at the Barnett farm so that its original shape and characteristics are evident.

Oval Shaped

The fern is a straight oval-shaped stalk. Although 30 feet of it was unearthed, indications were that the stalk may have been 60 to 70 feet in length, those who examined it said.

The big stalk was identified by H. R. Straight, Adel manufacturer and engineer, who has made an almost lifelong study of fossils.

Straight classified the petrified specimen as being of the genus lepidodendron which, he said, "is a very ancient plant-like form of vegetation--an immense fern."

The numerous species of this genus contributed largely to the formation of coal.

Straight examined a section of the fossil which was brought to him by Don T. Sanders, Des Moines, president of the Central Iowa Mineral Sociity, who went to the Barnett farm and studied the petrified stalk.

Fossil Collection

Sanders' attention had been directed to the find by Howard Barnett of West Des Moines, son of the owner of the farm where the fossil was found. Howard Barnett also has a fossil collection.

"A find of this type of fossil in Iowa is very unusual," Straight said. "The nearest comparable finds of which I know are in an area near Wilmington, Ill., where some very good specimens have been unearthed. But I know of nothing over there equal to the length of this specimen as it has been described to me."

"I have never heard of anything approaching the size of this fossil," Sanders said. "Petrified wood has been found in Iowa but usually in just small pieces."

New to Him

Barnett, 70, said he never had seen this type of fossil before.

For many years a coal mine foreman, he said he had found wood in unpetrified form in deep deposits, but none like the present discovery.

The immense stalk was about 40 feet below the earth's surface. It was embedded in shale, just below a 5-foot coal vein. It lay in a horizontal position, pointing east.

Although the section dug out was almost perfectly formed, indications were that an additional length, extending at least another 30 feet, had not completely fossilized.

"The exterior," Straight said, "appeared to have had some small fern-like leaves branching off from it. However, it was rather smooth and I could find no evidence of pore structure in it, which a wood formation would have had.

Original Vegetables

"It was one of the original vegetables which grew during the carboniferous age."

The petrified stalks at its widest section, measures about 22 inches across and is 9 inches thick.

"That is one of the characteristics of

these fern-like growths, which were not really trees. They tended to be flat in form," Straight explained.

"The plant probably had been there a long time before it got much weight on it and the shape probably would be its natural form," he said. "This and other types of ferns grew from 200 to 250 million years ago, in a country which was entirely tropical, all the way into Greenland.

"The giant fern probably was a very solid piece of vegetable matter. Its stock would have been something like the composition of another type of giant plant which was found in once-tropical America—the cycad.

Like Huge Cabbage

"The cycad was something like an immense cabbage," he said. "It had a huge stock, 4 to 6 feet long and the head was perhaps 2 feet across. The cycad was one of the earliest vegetables."

Straight made his identification by microscopic study of the pore structure of the specimen brought to him. He said the sample studied lacked the porous structure of petrified wood and possessed the solid characteristics of plant vegetation.

The fossil is in silicified form—the original vegetable matter having been replaced by silica.

A Preservative

"Silica had the ability to form as a jell and penetrate wood or vegetable matter and replace the fiber. In that way it acts as a preservative," Straight explained.

In his own collection Straight has about 80 identified specimens of petrified wood, some from trees that have been extinct for as much as 50 million years. Only a few of these were found in Iowa.

"It is rather rare to find these fossils in Iowa," Straight said, "because the glaciers have covered them so completely."

Mr. John Barnett and the huge fern fossil that is laid out near his residence.

Barnett has no plans at present for disposal of the unusual find, which was unearthed just as the strip mining operations on his farm were being completed. The fossil now is laid out with all fragments in place in the side yard, near the Barnett residence.

Find Root of Giant Iowa Fern Fossil
By George Shane
(Reprinted from Des Moines Sunday Register, July 11, 1954)

KNOXVILLE, IA.—One of the most dramatic fossil finds in the midwest was climaxed last week with the discovery of the petrified root of the giant fossilized fern recently unearthed on a farm near Knoxville.

The root was attached to a fossilized tree-like fern which had been discovered during strip mine operations on the John M. Barnett farm, 5 miles southeast of here.

Discovery Hailed

Students of fossilized plant life only a week ago had hailed the discovery of the 30-foot stalk of the fern as one of the most important discoveries in fossilized plant life in this part of the nation. It is believed to be, easily, the biggest fossil ever found in Iowa.

Only a few days following announcement of this find, Barnett continued his digging and uncovered the root section—a hard rock mass which is almost as large as the stalk of the petrified fern.

Of further interest to students of fossil life was a rock-like formations which had joined on the stalk and resembled some type of floral growth.

The growth probably was a lotus-like flower and was a separate plant, although attached to the fern's stalk, according to H. R. Straight, of Adel, student of fossil plant life, who examined both the original fern and the root.

The giant fern and root were found beneath a 5-foot coal vein. The formation was about 40 feet below the earth's surface before strip mining operations began.

Luxuriant Jungle

Straight estimated the fossil's age at 200 to 250 million years. It had grown in a luxuriant jungle when Iowa was part of a vast tropical region that extended as far north as Greenland.

Straight studied geology while working toward his engineering degree at the University of Illinois. He is now a manufacturer and engineer.

Bulldozer operations during the strip mining broke the fern stalk into numerous pieces but the root was far enough below the surface to remain intact.

Attempts will be made to remove the root in one section. The stalk has been reassembled in its original form at the Barnett residence.

Of irregular form, the root measures 14½ feet at its longest point. It is 7½ feet across at its widest section.

Further probings in the shale formation in which the fossil was found have indicated the fern actually was about 70 feet in length but did not become entirely petrified. Part of the stalk near the root was not petrified and a gap remained where the root would attach.

Lepidodendron

Straight a week ago identified the fern as being of the genus lepidodendron which, he said, "is a very ancient plant-like form of vegetation—an immense fern."

He said that during the week he had made microscope examinations of specimens from the stalk and the texture observed in the fossil confirmed this classification.

It was the numerous species of lepidodendron which contributed largely to the formation of coal. The fossil is in silicified form.

Grieger's Catalog No. 542

Grieger's, 1633 E. Walnut St., Pasadena 4, Calif., have issued their new catalog No. 542, covering chiefly, modern jewelry mountings and special findings. It is a 16-page, illustrated publication and issued free.

Grieger's have also published their Dealers' List #D-3. It is a dealers' wholesale price list covering jewelry parts, mountings, jewelry boxes and miscellaneous lapidary supplies and equipment—8 pages.

Lamps of Stone

By Al Bernsohn

1141 Merchandise Mart, Chicago 54, Ill.

You're wandering past the fascinating row of antique shops along New York's Second Avenue. Then suddenly, just below 34th Street, you see huge boulders of chrysocolla and rock crystal, rose quartz and amethystine geodes in blazing array in a window of a firm named simply "Highlights."

Go on in, and there you meet Helen Snyder, veteran interior decorator who decided she'd rather go from country to country, mine shaft to rock field, quarry to supplier in search of the world's most beautiful boulders than sip tea with the chi-chi set.

But just finding them isn't enough. She's not content until she wangles a place for each of her massive rocks in some well-appointed home.

Using the semi-precious stones and specially designed findings, she makes some lamps. Or she may uses interesting tangled roots, dried, cured and mounted, as the setting for her rocks, perhaps illuminated from behind, perhaps in the form of a medusa-like sconce or a pair of wall lamps. Sometimes, to match the decor of a room, she'll dye the big sheets of quartz crystal pink or blue or purple, the matrix usually taking up most of the color and the crystals absorbing only enough to tint them delicately without losing their transparency.

Drilling the back of each stone with diamond drills and setting with a hard plastic, the stones are mounted to the bases. These are in classical or modern design of wood which is stained, gilded, lacquered black or otherwise attuned to the setting. Or else the stones are mounted in crotches in the "driftwood." Plastic and wood are painted to blend in with the setting. Wiring is completed in accordance with good safety and performance standards. A shade is designed to suit the highly individual lamp. And some other decorator presents it to his client with the confident assurance that "It's the only one of its kind in the world."

Creating the design for her lamps is only the final step in the satisfaction Miss Snyder gets from her work. There's the excitement of exploring the country and the world for good material.

She's bought fluorite from New Mexico, tourmaline from Brazil and adamite from Mexico, in her never-ending search for material for original lamps. Other stones she's worked into her decorator pieces are amethyst, smithsonite, azurite, turquoise, garnet, mica crystals—and there are many more.

The big job, she feels, is to find a stone to suit a decor and a design to suit the stone.

During the war she forsook interior decorating to become an engineer, a field to which she devoted six years. Then she began searching for a new medium that would give outlet to her talents as a designer. Spending all of her leisure time out of doors, she stumbled into the rock museum at West Point near the close of the war. A pink calcite with black mica so intrigued her that she scoured Bear Mountain to find how it looked where it grew. That did it. She began learning where other decorative stones could be found in situ and she had a business before she knew it.

Before this, she had designed interiors for such personages as Thomas Hitchcock, Jr., Averill Harriman, Michael J. Meehan and Joseph Gengler. Today her clients include leading American Institute of Decorators members. She was one of the early members of this society. Her work with stones appears in the home of Mrs. Winifred Hagg of Greenwich, Conn., in the Lombardy Hotel in New York, at the Long Shore Beach and Country Club in Westport, Conn., in one of the fine interior decorator exhibits on the sixth floor or Chicago's Merchandise Mart and in many other places.

Typical of the pursuit of good material was a trip Miss Snyder took to Mexico recently where, at Mapimi, she gathered such a strange assortment of friends as a

highly patient burro named Rita, an astute and highly intelligent guide named Capitan Pablo, and a "gang" of 23 children ranging in age from 9 to 12. None including the burro, spoke or understood a word of English, so signs were the order of the day. Yet an award of a peso for a handsome piece of fluorite soon indicated to the brown-skinned, tireless pebble pups, rock hounds and boulder beast that this was what Miss Snyder sought. By the day's end, Rita and three of her corral mates were lugging double packloads of fluorite back to camp. It's a far cry from that mountain in Mexico to the lovely home in East Hampton in which some of that fluorite is admired today.

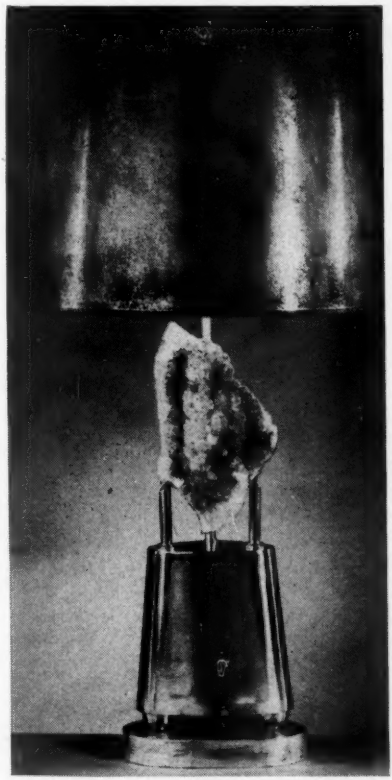
All materials are difficult to get in the sizes she can use, so her fun is enhanced by the chase. She finds fluorite particularly interesting because of the varying pattern of its crystalline formations, like steps of odd sizes, in a material ranging from almost pale blue through deep purple to a yellow-green.

She reasons "When stones grow naturally with beautiful crystals naturally faceted to catch the light from many angles, why destroy this by cutting it into a grotesque figure as we did 25 years ago?" She has one of the finer carved lamps of yesterday displayed among the natural stone lamps she makes today—and nobody has even asked her the price!

Helen Snyder's work has brought some criticism from geologists who claim that they love rocks and hate to see their color changed. She answers "We do what the client wants here and if she feels she looks better if she applies rouge, so she feels a few drops of dye might make a stone blend better into her room. She is happier. I may give geologists a headache a few years from now when they are trying to identify a stone—but they aren't my main clients. *They* wish to order what they want." Still her work has also created a new respect for the wonders nature has wrought in these giants jewels of hers and given her an outlet for her artistic talents entirely original and unique —and fun, too.

Now Miss Snyder is planning to develop additional uses for natural semi-precious stones in the home. She's going into giant gem cutting soon, with a 48-inch saw and a lap almost that big in diameter which she stoutly denies having borrowed from an amusement park. With the things she cuts on this equipment will come new applications in the home: giant mosaics in the walls, framed stones polished to perfection, centerpieces for the table made up of well-chosen assortments of fist-size natural stones on a polished stone platter, tables featuring other stones than marble in the marble-topped treatment, wall ceiling fixtures, beautiful stones located wherever their beauty can be made an important part of the room.

In this she finds her greatest satisfaction.



An attractive lamp designed by Helen Snyder of 'Highlights." It features an amethyst on a gold leaf vase. Gold shade stipled amethyst. 32" overall.

THE LUMINESCENT MINERALS OF FRANKLIN, NEW JERSEY

By FELIX ERNEST MUTSCHLER

118 Ascan Avenue, Forest Hills Gardens, New York

Since Palache (4), in 1928, described ten Franklin minerals which fluoresce under the iron-arc, no comprehensive listing of the luminescent minerals of the district has been published. The purpose of this paper is to bring the list of fluorescent minerals from this famous locality up to date, thereby offering the amateur mineralogist a useful guide for identifying those minerals which respond to ultra-violet radiations. Several errors which have appeared in fluorescent literature are also corrected.

In recent years ultra-violet lamps and filters have been greatly improved. This gives the mineralogist access to a wide range of wave lengths which will excite luminescence in many species which are unresponsive to the iron-arc spark-gap apparatus. In the preparation of this paper most of the minerals were examined under "short waves" (2537 A) and "long waves" (3650 A). Specimens were also exposed to the iron-arc and were tested for triboluminescence and thermoluminescence.

The luminescent properties of several Franklin minerals provide a series of simple, effective tests for their identification. This may be applied to minerals such as:

(a) calcium larsenite, clinohedrite and margarosanite which often occur in minute amounts and,

(b) species whose habit and properties are similar to other minerals, such as the secondary veins of reddish crypto-crystalline sphalerite, resembling friedelite from Sterling Hill. Even detection of the everpresent willemite of the zinc ores which occurs in a great variety of colors and forms is facilitated by the characteristic green fluorescence willemite usually emits under ultra-violet radiations.

Many of the luminescent minerals from the district do not react consistently. In these cases the absence of fluorescence proves nothing, but its presence may be of considerable value in identifying a questionable specimen. Svabite, axinite and hardystonite may be cited as examples of this group.

The investigator of mineral luminescence faces numerous problems. Care must be exercised not to mistake visible blue and violet light passed by the lamp filter and reflected from the specimen for fluoresence. All dim thermoluminescent and phosphorescent reactions which appear to be of a whitish hue should be regarded skeptically, since the eye fails to differentiate colors when the intensity of light is very low. Any attempt to describe fluorescent colors to a person who has not experienced them is difficult. For example, both hardystonite and margarosanite fluoresce with violet tints. Printed descriptions of the vivid blue-violet of margarosanite, and the dull, deeper tone of hardystonite fail to convey the visual impression gained from a brief glance at these two minerals under a short wave lamp.

The nature of activators and the manner by which they trigger fluorescence offer many opportunities for further study. It has been demonstrated that small amounts of manganese activate the fluorescence of willemite; and together with lead the luminescence of calcite. As yet no comprehensive work covering the rarer Franklin fluorescents has appeared. During the preparation of this paper the writer tested several specimens qualitatively and, in some instances, quantitatively for manganese. It was found to be present as an impurity in the cases listed below. It can also be stated that, in general, the presence of iron tends to inhibit fluorescence.

Luminescent Minerals

ANORTHITE from the pegmatites which cut the ore body at Franklin some-

times exhibits a pale blue fluorescence under short waves.

APATITE: Translucent bluish crystal of apatite in limestone may show a very pale greenish fluorescence with short waves.

ARAGONITE: Some crystalline aragonite from secondary hydrothermal veins at Franklin fluoresces a yellowish-cream and phosphoresces briefly with the long wave lamp. Short wave responses are less intense.

AXINITE, variety manganoaxinite, sometimes gives a red fluorescence and rarely a red phosphorescence under short waves. Crystallized axinite is more likely to respond than massive material.

BARITE, as pale blue masses disseminated in calcite, fluoresces a delicate blue to grayish-cream upon exposure to short waves. Some specimens of crystallized barite also exhibit a bluish luminescence.

BARYLITE: Palache (5) described the bright blue fluorescence excited by the iron-arc. In short waves it is very pale blue or negative.

BUSTAMITE: Some of the material locally called bustamite fluoresces pink to deep red with long waves. Whether much of it is bustamite or fowlerite has not been determined.

CALCITE[1]: Manganiferous calcite is the most common gangue mineral of the zinc ores and usually fluoresces various shades of red and pink. Often it exhibits an intense red phosphorescence of very short duration. The fluorescence induced by short waves is generally more pronounced than reactions under the long wave lamp. Some specimens exhibit a faint thermoluminescence.

Brown (1) has shown that the presence of manganese carbonate, varying from 0.24% to about 17%, activates the fluorescence of calcite, with about 3.5% giving maximum brilliance. More recently Schulman, Evans, Ginther and Murata (6), have presented evidence that the presence of lead as a co-activator is essential for the red luminescence of manganiferous calcite from Franklin.

Calcite from the Franklin limestone occasionally fluoresces and phosphoresces bright blue in short waves. Crystallized calcite from the magnetite ores may fluoresce and phosphoresce a delicate bluish-green.

A specimen of pale brown rhombohedral crystals of carbonate coating a vein in oxidized zinc ore fluoresces yellow under long waves. Since none of this material was available for analysis, it is tentatively recorded as an iron rich (?) calcite.

CALCIUM LARSENITE occurs as whitish masses associated with other pneumatolytic products. When excited by short waves its intense lemon yellow fluorescence serves as a positive test for identification. Reactions with long wave lengths are less brilliant.

CLINOHEDRITE may be detected by its orange fluorescence with short waves. Some specimens phosphoresce briefly the same color. Long wave responses are of a paler yellowish tone.

CORUNDUM: Red and purplish gray crystals and grains of corundum in crystalline limestone may fluoresce bright red upon exposure to long waves.

DIOPSIDE: Light gray crystals of diopside from the Franklin limestone may give a pale bluish-cream fluorescence under short waves.

FLUORITE: A specimen of colorless cubic crystals of fluorite in a vein cutting zinc ore phosphoresces bright blue after exposure to the iron-arc. Brown and red manganiferous fluorite from the ore body thermoluminesces a lasting green and occasionally phosphoresces and fluoresces a feeble green under long waves.

HARDYSTONITE sometimes fluoresces a dull, deep violet with the short wave lamp and the iron-arc. Negative under long waves.

HYDROZINCITE is infrequently found as an alteration product on zincite which responds to ultraviolet radiations with a pale blue fluorescence.

MARGAROSANITE fluoresces a distinctive, vivid pale blue-violet under the iron-spark and short wave apparatus.

[1]The fluorescence of calcite under the iron-arc was described by Palache (4), who also first described the luminescence of calcium-larsenite, clinohedrite, hardystonite, margarosanite and pectolite.

NORBERGITE can be found in the limestone quarries near Franklin where it occurs as crystalline grains in zones affected by pegmatitic intrusions. Specimens sometimes react to short waves with a drab yellowish fluorescence which is apparently controlled by variations in the amounts of manganese and iron present as impurities.

PECTOLITE fluoresces and phosphoresces yellow under the iron-arc and gives a feeble yellow reaction with other lamps. The response is probably activated by manganese in the Franklin material since nonmanganiferous pectolite from Paterson, N. J., does not luminesce.

SMITHSONITE usually fluoresces a yellowish-cream tone under the long wave lamp.

SPHALERITE is often encountered in secondary veins, cutting the ore bodies at Sterling Hill and less frequently at Franklin. It occurs in a great variety of forms and colors and may often be mistaken for friedelite, willemite or other minerals. Identification of the lighter colored varieties with a low iron content is facilitated by the salmon-orange fluorescence they emit under long wave excitation. Some specimens show a lasting phosphorescence of the same color. The sphalerite is usually triboluminescent and thermoluminesces orange.

Accompanying the sphalerite is usually an unidentified material, probably an alteration product, which fluoresces blue.

SVABITE sometimes fluoresces a yellowish-orange tone with the short wave lamp. The fluorescence is probably controlled by variations in manganese content.

THOMSONITE, variety calciothomsonite, fluoresces pale blue under long waves. Negative with short waves.

TREMOLITE: Elongated, gray-white crystals of tremolite from the Franklin limestone exhibit a very faint greenish fluorescence (?) under short waves.

WOLLASTONITE has recently been found at Franklin as crystalline masses which fluoresce a brilliant orange to orange-pink exposed to short waves, and sometimes give a weaker pinkish response to long waves. All the Franklin wollastonite examined by the writer was manganiferous, most specimens containing over 3% MnO. Manganese free specimens from Willsboro, N.Y., and Inyo County, Calif., failed to fluoresce, indicating that manganese probably activates the Franklin material.

WILLEMITE is the best known of the Franklin fluorescents. It usually responds to ultraviolet radiations with a green to yellow-green fluorescence and may phosphoresce strongly. Reactions under short waves are usually the most pronounced. Some willemite crystals may show a zoned fluorescence. Many specimens also triboluminesce and thermoluminesce. The fluorescence of willemite is activated by manganese and it seems possible that the presence of beryllium may, in part, control phosphorescence. Two strongly phosphorescent specimens, one of white radiating crystalline material, the other of massive white willemite were analyzed spectrographically. Beryllium was found to be present in both. A non-phosphorescent white specimen did not contain beryllium.

At Sterling Hill small crystals of willemite, containing traces of lead and copper, were found recently in a secondary vein. These crystals fluoresce and phosphoresce with a strong lemon yellow tone.

Unconfirmed Species

The following fluorescent reactions have been reported by previous investigators. The writer has examined specimens of these minerals and has been unable to confirm their results.

HEDYPHANE: Reflected light may have been mistaken by Palache (4), who reported an indistinct bluish-gray fluorescence.

LARSENITE: The inconsistent pale violet reaction, observed by Palache (4), was probably also due to visible light.

MANGANOSITE: De Ment (2) mistook reflected violet light for fluorescence in this species.

MOOREITE: The red fluorescing material, mentioned as mooreite by Thomas (7), was undoubtedly calcite.

NASONITE fluoresces blue according to De Ment (2). None of the writer's specimens reacted. Nasonite examined by Frondel and Bauer (3) also was non-luminescent.

ROEBLINGITE: Palache (4) described an inconsistent pink fluorescence under the iron-arc. The writer observed a similar reaction under both short and long wave lamps. However, a careful examination disclosed the presence of admixed calcite. After separation the pure roeblingite was non-fluorescent.

RHODOCHROSITE: The material for which De Ment (2) described a pale pink fluorescence under short waves was undoubtedly a manganiferous calcite.

WILLEMITE: The green fluorescence ascribed to bementite, caswellite, friedelite, gageite (?), hancockite (?), hardystonite, hodgkinsonite, manganophyllite, schefferite and tephroite by De Ment (2) was undoubtedly due to admixed willemite.

Acknowledgments

In preparing this paper more than one thousand specimens were examined, many of which were made available to the writer through the courtesy of the New Jersey Zinc Company. I am deeply indebted to the late Mr. L. H. Bauer, the Company's former chief chemist at Franklin, for his many kindnesses and generous advice and criticism. Mr. S. S. Goodwin, vice-president of the New Jersey Zinc Company, and Mr. W. F. Evans, general superintendent at Franklin, also gave me valuable assistance in obtaining specimens for study. Mr. J. L. Baum, of the Company's geology staff at Franklin, called the writer's attention to the luminescence of anorthite, diopside and smithsonite and offered many helpful suggestions.

Dr. Brian H. Mason, curator of mineralogy at the American Museum of Natural History, kindly allowed the writer to examine several specimens in the Museum's collection.

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George E. Steel

(Obituary Notices)

George E. Steel of Toronto, Ont., Canada, a subscriber for ROCKS AND MINERALS for many years, died recently while traveling through the British Isles. Word of his passing comes from Sandy Ramsay of Glasgow, Scotland, in his letter dated Aug. 13, 1954.

"Grant Waite of Toronto wrote me that George E. Steel, an ex-president of the Toronto Mineral Club, was holidaying in England and would be visiting Scotland. I wrote Grant that if Mr. Steel got in touch with me I would take him to some collecting localities and would make sure that he got a few Scottish specimens for his collection. In the course of our correspondence, I mentioned that the Rev. Wm. Frazer of Moosic, Penn., was in Scotland, so we would arrange to go collecting together for agates at Usan.

"The date fixed, I phoned Rev. Frazer to find out where we were to meet and at what time. Imagine the shock I got when Rev. Frazer told me he had received word from Penrith that George Steel had had a heart attack and died the previous day."

MICROMOUNTS OF SOME OREGON MINERALS

By FORD E. WILSON

Geological Society of the Oregon Country

The purpose of these paragraphs is to describe several occurrences in Oregon of material suitable for mineral micromounts. Although only a limited number of minerals are included, it is believed that an account of them may be of value to devotees of the "smallies."

Basaltic rock covers much of Oregon. When more or less altered or decomposed, this rock is the natural home for a variety of well crystalled zeolites. Some of these yield excellent micromounts, as described below.

Around the hot springs at Ritter, a great amount of zeolitic material has been deposited in Columbia River basalt. It has been described by Hewett, Shannon and Gonyer, (1). In a road cut near the post office, mesolite occurs as wool-like or fibrous filling in voids within the basalt. Supported by one or more of these fibers are tiny, perfect, water-clear stilbites. Pseudo-orthorhombic, their nature as monoclinic penetration twins is immediately revealed by examination in cross-polarized light. They have the same faces, b, c, m and f, as the crystal from Franklin, N.J., depicted by Palache, (2) figure 185.

What appears to be stilbite of different habit occurs in voids in basalt at a road cut near Summit Creek, on the Columbia River Highway, a few miles east of Cascade Locks. It forms brilliant, clear, colorless, square-ended prismatic crystals. Only the b, c and f faces are present. These crystals show the normal penetration twinning mentioned above. In just one crystal, of dozens examined, was an m face present and that only as a very minute triangle. Locally, cabinet-sized specimens whose crystals approach this habit are called flat-topped stilbite. Associated with the crystals from Summit Creek are tiny amethystine quartz points. This combination produces micromounts of great beauty.

Chabazite crystals, in the usual pseudocubic habit, are common at many Oregon zeolite localities. Excellent micromounts come from Coffin Butte, in Benton County, a few miles north of Corvallis. The crystals are brilliant, sharp, transparent and colorless. Many show interpenetration twinning.

Phacolite, a variety of chabazite, occurs in the basalt forming Springfield Butte, adjacent to the city of Springfield. Quarrying operations have revealed some highly altered zones. These, being of inferior quality, are rejected as a rock source, but form excellent collecting spots for the mineralogist. In one environment, tiny micro-sized phacolites occur perched on the tips of radiating natrolite prisms, which, in turn, form the surface of solid spherulites. The crystals have a biconvex lens shape, with rhombohedral faces making up most of each termination. A clear cut groove around the "equator" of each crystal gives evidence of the intricate internal twinning. The same sort of phacolite crystals occur implanted on a drusy surface of heulandite crystals and surrounded by a fibrous zeolite, unidentified because of weathering.

Natrolite, as sharp, square, terminated prisms suitable for micromounts, is plentiful at this same quarry. Other associates are trapazohedra of analcite and, very rarely, gmelinite in terminated hexagonal prisms, appearing much like quartz crystals.

A few miles north of Springfield, in a quarry adjacent to the McKenzie River, are found tiny, brilliant analcites of the form just noted, perched on or encircling natrolite prisms. These appear identical with similar specimens from Tick Canyon in California.

What appears to be a further crystallographic development of this zeolite combination has been described by Dr. L. W. Staples, (3), for material from Coffin Butte. In this case, the analcites growing on a radiating group of natrolites have merged to form a spheroidal group. The original natrolite, or something representing it, remains as whitish inclusions in the analcite. A specimen of this mate-

rial forms an excellent companion mount for the analcite - on - natrolite described above. The occurrence north of Springfield was noted by Dr. Staples.

Analcites carrying or enclosing well formed laumontite crystals have been found in King's Valley. Only a few of these have been noted.

A basalt quarry at Goble yields a variety of zeolites. For the micromounter, there is thomsonite in micro-sized spherulites appearing as splendid milky-white, translucent pearls. These rest upon a druse of heulandite and have as associates, pseudo-cubic chabazite and prismatic stilbite. Near Kalama, Washington, across the Columbia River from Goble, occur snow white hemispheres of thomsonite bearing on their surfaces numerous brilliant chabazites in single or twinned habit. These make excellent mounts.

In Oregon, cabinet sized specimens of heulandite are not difficult to secure. For micro heulandites, one of the most promising areas is around Lowell. Specimens from there are brilliant, clear-cut and water clear, with only a suggestion of pearly luster on the b faces. Tiny aggregates of heulandite crystals, in par allel growth, occur in basalt near the tunnel at Oceanside in Tillamook County. Some of these are milky white, while others are pale green in color.

Datolite, suitable for micromounts, occurs at Cox Butte, near Junction City. It forms colorless to white single crystals or groups, perched on steep calcite rhombs of honey yellow color.

Microcrystals of deep red, transparent cinnabar occur in the Horse Heaven mine in Jefferson County, some miles southeast of Antelope. Tiny globules of mercury sometimes occur in pockets in the cinnabar and provide mounts of this liquid mineral.

Stibnite is a not uncommon mineral. This writer has it in micromount form from Oregon Queen mine, located not far from Horse Heaven mine. Here it occurs in vugs in a tough quartzose rock, as typical curved prismatic crystals. Some have been converted to antimony oxide, pseudomorphic after the original sulfide.

Pyrite, of course, is everywhere. For micromounts, to demonstrate some of its many habits, specimens were collected at the three following localities: from Musick Mine, in the Bohemia District, as cubes with minor octahedron and dodecahedron faces; from near Nimrod, on the McKenzie River, as octahedra, with each point modified by two small pyritohedron faces; and from Whitman Creek, near Detroit, as brilliant pyritohedrons with minor octahedron and probably diploid faces. This pyrite from Whitman Creek resembles very much the pyrite from Park City, Utah. The crystals are, however, imbedded in a matrix of stilbite which occurs in an altered granodiorite.

From King's Valley, near Corvallis, come beautiful, tiny quartz crystals in scepter habit. Terminations consist of a single rhombohedron. The crystals, in pin cushion groups, have a delicate amethystine tint.

Beta-quartz crystals, nice for micromounts, occur in great number in an area a few miles north of Jasper, in Lane County. They probably come from a decomposed tuff in that locality. Similar crystals, in micro size, occur south of Burns.

Many of the specimens which have been described were collected by the writer. Two came from Mr. Ray Schneider and several from Mrs. Ted Gordon, Sr., Oregon's well known zeolite enthusiast.

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THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.
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Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

JAPANESE LAPIDARY WORK

As a result of a prolonged tour of duty in Japanese waters, the author found himself in an excellent position to examine many pieces of contemporary Japanese Lapidary work, almost solely the output of the cutting center of Kofu. Certain products of this city are well known to Westerners, particularly quartz spheres and quartz 'pagoda stones', the latter being slender tapering prisms of triangular cross section inscribed on the back with a series of ground notches. When viewed from the front, the images of the notches are reflected from the sides of the prism and a pagoda appears, complete with curved roofs and windows. Not so well known are the carvings of figurines, animals, etc. which this center produces and which may be seen for sale in many curio shops in the larger ports and cities of Japan. It is the purpose of this paper to discuss these carvings, their raw material, their subjects, size and above all, an evaluation of their quality from the standpoint of lapidary work. It is hoped that this paper will serve as a guide to those who contemplate sending raw material to Japan to be processed into carvings for not all of their work is good and not all materials can be handled with the same results.

The biggest drawback to Japanese carving is the singular lack of imaginative design and the exercise of initiative in the execution of commissions. Of all carvings ever accomplished by Japanese artisans ,the small buttons used to suspend INRO or medicine boxes, from the waist sashes of well-to-do Japanese were without doubt, the most intriguing and meritorious work ever accomplished by a civilization capable of the finest work in miniature. These buttons are called NETSUKE and are prized collectors items today inasmuch as none are being made now except a few trashy imitations, and the old are increasingly scarce. These carvings displayed a wonderful spread of imagination both in the use and execution of subjects as well as the materials employed. It is a matter of deep regret that no trace of this same art has infiltrated the corps of workers in stone at the lapidary center of Kofu. Certainly hard gem materials are far more difficult to fashion than the soft ivory and wood employed by the Netsuke artists but this is not entirely to blame especially when one considers the work of the Chinese in this field. Admittedly the delicate undercutting and fully round work of the Chinese is extremely time consuming and by modern standards would lead inevitably to high costs for labor and thus destroy one of the attractive features of carving work sent to Japan. Yet, an examination of the works created by the Kofu artisans shows a monotonous sameness in traditional subjects and a lack of grace and true sculptural ability in subjects like non-indigenous animals, and in human figures. Where the carver is called upon to hammer out the same god or figurine day after day, the work portrays an excellent frugality of detail sufficient to establish the characterization without being over-fussy. On the other hand any deviation from a traditional design is bound to be awkward and reveals all too clearly that these carvers are technically proficient but artistically deficient. In the view of the author, a truly skilled carver in stone must first be an artist and then a lapidary. In this vital respect, Kofu falls down seriously.

It is sometimes amusing and sometimes infuriating to perceive the effect of the Japanese national character upon so trivial a thing as carving in stone, it all depends on whether or not you are

paying for it. The citizens of this nation are accustomed to regimentation in all walks of life from the cradle to final interment, everything is done with extreme politeness and rigid custom deems it very discourteous to say 'no.' From the business viewpoint these charming traits are apt to be troublesome and anyone undertaking a project in Japan is well-advised to take these into consideration. For one thing, most Japanese do not like to make decisions solely on their own for fear that any decision made may not please the customer. Thus it is far easier for them to request explicit instructions before undertaking some task and follow these instructions TO THE LETTER! If you should send a batch of rough to be carved for example, any piece which is obviously defective and should not be worked on will be worked on willy nilly!—you said so! If you should draw a sketch showing the IDEA of a carving and assuming that the craftsman will alter it as necessary to fit the piece of rough, embellishing the detail as needed,—you are in for a shock! You will get your carving and it will be as good as your sketch but no better!

In regard to rough, it is most advisable to send only those pieces which are obviously top quality. Flaws, earthy inclusions, alternate soft and hard areas, discolored areas, etc. are just so much grist for the mill and if not plainly impossible, will be cut and charged for. This is particularly true of agate and jasper as well as others in which great differences can occur between the outside and the inside of the specimen. It is probably better in such cases to section this type of material to be certain that all is useful. Whenever beads are specified it is also very worthwhile to cull out indifferent pieces or trim off offending parts on a saw.

The range of objects that can be cut at Kofu is considerable and embraces figurines less than an inch high to bowls and large carvings as great in size as you care to have them, although no Kofu carvings in excess of about 12" in height have been seen. Charges are made on the basis of size mainly or put another way, on the basis of how much material has to be removed. Hollow objects such as bowls and boxes cost considerably more than conventional 'in-the-round' carvings, especially when the cavity departs from a cylindrical form such as a tube drill can make in one continuous operation. For these reasons, it is considered that the 'best buy' in Kofu work is small work, small figures and carvings probably not over about 2" in major dimension, anything larger causes the price to ascend steeply. Excellent work will be obtained if the carvers are ordered to produce subjects with which they are most familiar, i.e. the seven Japanese gods—EBISU, deity of fishermen, cheerful, smiling and generally shown carrying a fish under one arm and a fishing pole in the other; DAIKOKU, the farmer's patron, generally shown seated on several bales of rice with a bag slung over one shoulder and a mallet held in the free hand, this mallet is magical in its powers and can produce anything desired; BENTEN, the only female in this group, the patroness of the arts and the culture of the people, she is shown with a lute which she is playing; FUKUROKUJU, a peculiar, enormously long-browed seated figure who is the seer of the future, he furnishes guidance to all person, as seen in carvings he carries a scroll containing the data of all ages, a crooked staff, and may have in addition, the mythological Japanese turtle with the long, hairy tail; BISHAMON, the warrior's patron, he protects their spirits and ensures victory, he is shown in armor and carrying a long halberd; HOTEI, possibly the commonest figurine to be carved in Japan, he is enormously fat with his bare belly overflowing his legs in seated position, invariably he is equipped with a jolly grin; JUROJIN, the god of old age and shown as an ancient man with a bent sceptre, in addition to the Seven Gods another is very common, the KWAN YIN of the Chinese or the KANNON of the Japanese. This is the willowy and lovely featured goddess of mercy, shown most often as an erect slender figure with cowled forehead and

deeply folded robes draping the entire body. Buddhas are also quite common and generally very well done.

Among animal figurines elephants are quite good in feeling and execution, followed by some excellent and realistic tigers and lions, as well as lesser luminaries of the animal kingdom such as rabbits, dogs, and monkeys. Birds are uncommon no doubt due to the mechanical difficulties in executing their spindly legs. Dogs are quite poor and do not look like any Western dogs that we commonly own and admire. Monkeys are quite husky and robust and resemble bears more than they do monkeys. Fish are quite graceful although highly stylized. Generally made to be quite thin, they are very effective in translucent material. Some excellent roosters have been seen from Kofu and are about the only exception to the lack of bird subjects already mentioned.

Among non-animate objects may be mentioned ashtrays, bowls, boxes, perfume bottles with or without stoppers, small vases and urns, and the crystal pagodas spoken of before. As with figurines, any departure from accustomed designs is fraught with hazard to the customer unless he can furnish complete sketches, a model, or a photograph. It is advisable to do this if one counts on being completely satisfied.

In regard to quality of work, that is, the finish of the surfaces as distinguished from the artistic merits of the subjects, it is best to consider the various materials seen and examined and comment on each briefly.

QUARTZ, *Crystalline varieties* — The Japanese are most adept at handling these, having carved them for centuries. Spheres are well-executed both in geometry and in the finish of the surface. Carvings are very well done and scrupulously polished but with a finish which is not always perfect because of traces of previous abrasive operations. Crystal pagodas are lapped rather than sanded and sometimes show either an incomplete lapping job or deep circular scratches only partially polished out. Beads are very well done considering their very modest price. Tigereye is most competently handled but no skill on the part of the cutters can overcome the difficulties of porous rough. In all crystalline types of quartz, cracks show up with distressing clarity while bubble inclusions or veils are not so noticeable. For this reason, it is best to avoid sending any cracked material whatsoever.

QUARTZ, *crypto-crystalline varieties.* The techniques used by the lapidaries of Kofu call for sanding with some kind of yielding wheel, probably wood, and with loose grit as the abrasive. Accordingly, any strong contrasts in hardness will be emphasized or undercut and will adversely affect the quality of the polish Agates, jaspers, and other crypto-crystalline varieties of quartz should therefore be as homogeneous in composition as possible, particularly avoiding the types with interlaminations or centers of crystalline material. The polishing agent seems to be principally chrome oxide which as everyone knows, is strongly staining and the perfect dickens to get out of cracks and pockets. Porous jaspers may be completely disfigured when polished with this agent and it is advisable to take this into consideration when selecting rough. Dark green moss agates, such as the Indian material, are actually splendid for this agent because the color matches that of the inclusions but for many others the bright green of chrome is certainly out of place.

OBSIDIAN — This is a familiar material to the Kofu carvers and they experience no particular difficulty with it.

SERPENTINE — Serpentines are well-known to the carvers of Kofu who handle it about as well as can be expected. Williamsite is polished very nicely and with an acceptably low amount of undercutting, generally superior in finish to that most amateurs can give. Calcite-serpentine mixture are troublesome to these carvers but after all, they are troublesome to even the best. It was noted, however, that the Kofu drillers had extreme difficulty in boring fine gauge holes through williamsite—why this should be so is puzzling unless the

considerably harder granules of chromite cause deflection of the drill points and result in crooked holes.It is not known what kind of drills are used for this delicate work but it is likely that they are NOT diamond tipped. As an interesting sidelight, the carvers of Idar-Oberstein in Germany, drill williamsite without apparent difficulty.

FELDSPARS — All specimens of native feldspars sent to Japan have returned with excellent finishes.

BERYL — In the round carvings noted have been executed with apparent ease and excellent polishes. This type of rough, so often just flawed enough to eliminate it from faceting, is most splendidly adapted for carving into small and elegant figurines. As far as could be seen, carving charges for beryl and tourmaline were the same as for quartz.

JADEITE — Work in this material was not at all impressive, being characteristically 'lemon-peeled,' particularly the local pale-green and white material discovered several years ago on the Island of Honshu. It is believed that the Japanese have never had an opportunity to obtain the rough for carving in either jadeite or nephrite due to the virtual monopoly placed upon this material by the Chinese in years past. As a result of unfamiliarity with the material, they have not learned how to process it correctly. The lemon-peeling probably gets off to a good start in the sanding stage, a peculiarly crucial point in the treatment of jade.

TOURMALINE — The carvings executed in this mineral have all been very well polished although pores do get filled up with the difficult-to-remove chrome oxide. This isn't bad in green varieties but doesn't look at all well in the pinks and reds. Incidentally the newly-mined pink tourmalines from the Himalaya Mine in San Diego County, California, are eminently suited for carving.

MALACHITE — This troublesome material is handled very well by the cutters of Kofu and excellent polishes are applied. Because of the propensity of this material for small vugs and cavities however, a most careful selection of rough is necessary to avoid disappointment.

SODALITE — Handled and polished without difficulty.

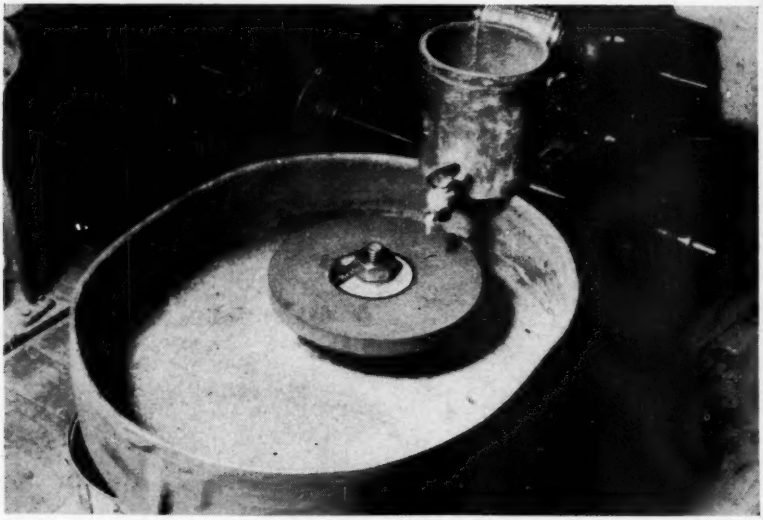
RHODONITE — Similar in difficulty to jadeite and for the same reasons. The polish given to this material was spotty and lemon-peeled very noticeably. The general effect is satisfactory however.

In conclusion it may be stated that the Japanese carvers of Kofu turn out very satisfactory work within the limitations already referred to. They require much more experience with a wider variety of rough however, and sound artistic training or supervision at the working level before they can be considered as proficient as their German counterparts in Idar-Oberstein. It is clearly necessary to establish a complete understanding of what is to be done before satisfaction can be guaranteed. Photographs, drawings, or models, should be provided whenever possible to guide the carvers. Rough should be most carefully selected to eliminate the possibility of carving of obviously unsuitable material. Flaws, cracks, and other unsuitable areas of rough chunks, should be trimmed off beforehand. In general, good polishes will be obtained if material with a homogeneous structure is sent over but material with tendencies to undercut may not fare so well. Finally, costs mount precipitously with size and medium quality material should not be sent to be carved into large objects.

Minerals Unlimited New Price List

Minerals Unlimited, 1724 University Ave., Berkeley 3, Calif., have issued recently a seven-page price list. Two and a half pages cover choice U. S. minerals and the remaining four and one-half pages list new arrivals of minerals, many from foreign countries.

A NEW SIMPLIFIED METHOD OF SANDING GEM STONES



New "Brightboy" rubber-bonded abrasive lapidary wheels simplify sanding operations on gem stones to achieve almost unbelievable results.

A new simplified method of sanding gem stones has just been developed which should be of interest to Arts and Crafts hobbyists and to the many students in the nation's schools who are interested in jewelry crafts and gem stone work.

A set of long-lasting rubber-bonded abrasive wheels, known as Brightboy Lapidary wheels, which are said to be particularly effective in simplifying sanding operations on such stones as opal, agate, moss agate, tigereye and the various grades of jade, has just been introduced by the Weldon Roberts Rubber Company, Newark 7, N. J. The occurrence of "orange peel" effect and pitting on jade is eliminated.

The manufacturer of Brightboy Lapidary wheels state that the soft rubber binder and the abrasive, working together, achieve almost unbelievable results. The wheels always remain uniform in texture, constantly presenting an abrasive surface just right for sanding gem stones. The padding and fuss of sanding cloth are completely eliminated when Brightboy Lapidary wheels are used.

Only two Brightboy wheels are all that are required for sanding any gem. The wheels may be used wet or dry. The long-wearing wheels come two to the set, one wheel fine, the other coarse. Set No. 1-L and No. 3-L are recommended for use on vertical arbor machines; sets No. 2-L and 4-L for horizontal arbor machines. Full details and prices may be obtained from Weldon Roberts Rubber Co., Brightboy Lapidary Dept., 95 North 13th Street, Newark 7, New Jersey.

Rev. Paul M. Dobberstein

(Obituary Notice)

The Rev. Paul M. Dobberstein, 81, pastor for 55 years at St. Peter's and Paul's church, West Bend, Iowa, died July 24, 1954, in Fort Dodge, Iowa.

Father Dobberstein was the builder of the Grotto at West Bend, made of stones he collected from all over the United States and abroad. He was born in Germany and attended a seminary in Milwaukee, Wis.

Services were in West Bend, with burial there. He is survived by a sister, Mrs. J. E. Hermeling, Minneapolis.

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

This old orb should be on even keel again, now that Mars has turned his back on us. Jack and Jill should be staring at the backs of each other's necks in school. Dad might be lost each evening with his micros or polishing and Ma will be wondering if he deserves a Christmas present this year.

Speaking of Christmas presents,, it isn't too early to be presently speaking of Christmas presents. To mention a few things: Gieger Counters from $37.50 and up, books, microscopes, hand lenses from $3.75 and up, cabinet specimens, cutting material, grinding wheels and lapidary accessories, gem sets and a hundred and more items which you can see are advertised in Rocks and Minerals Magazine.

If it's ready made cabochons you want, from your own material or not, the Kane Lapidary & Supply of 2813 N. 16th Street, Phoenix, Arizona, will do the job expertly for as little as a dollar per stone and for not too much more will mount the cabs in exquisite settings. Mr. Kane sent us two sets of very (very) highly polished Brazilian agates. One pair of blue dyed agates were set into silver cufflinks in the modern motif. Of course, there are settings for the ladies, too. It's best to get in touch with Kane Lapidary & Supply before the rush. This is uncommonly good lapidary work and jewelry work. They deserve our most sincere praise.

As if you have not heard: Franklin, N.J., mining operations are at an end—supposedly forever. We hoped this was not so, but we are afraid it is. John S. Albanese sent us a nice list of Franklin specimens for the cabinet and for micros. On the first page was the gloomy note about Franklin's New Jersey Zinc Mine. Operations will continue at Sterling Hill.

Let us all try to look more to the future when we visit mines and quarries. Mineral groups should want to be welcomed back! Work safely, keep the young ones in tow and try not to leave litter. It pays off.

Clayton Hamilton visited Canada and brought back many interesting specimens, some few of which he sent us for a look-see. One unuually fine piece of hackmanite fluoresces best under long wave lamps such as the SL 3600 Mineralight aand the EH4. There were packets of crystals and unusual calcite specimens as well as a fine pyroxene group with scapolite in matrix. You will remember the name Clayton Hamilton as the dealer who introduced the Lapidabrade grinding wheels to us this season. Incidentally, have you tried them?

Those who cut agate nodules know that every one that is cut in half or slabbed do not warrent the operation. They must all be cut to find the beauty within. The Caribou Lapidary Company of Wauconda, Washington, has cut hundreds of nodules from the famous Red Top Mountain and offer the best pieces to those who admire fine agates. There are delicate blues to smoky and browns with fine and bold patterns. Slabs and halves from one and a half inch to four inches are available. Write this company for particulars. They still have plenty of that deliciously colored pink and green thulite, green fluorite and jewelry.

Prices have been drastically slashed by E. M. Gunnell. See his ads in Rocks and Minerals Magazine for mineral specimens and crystal collections. We still wonder how Mr. Gunnell assembles such perfect crystals; how he gets them in the first place and how he can sell such perfection for so little. A Gunnell set would be one grand Christmas gift.

Paricutin, in Mexico was a great show while it lasted. Now that the volcano is inactive, mineral specimens will find their way to collectors by direct action

collecting or through mineral dealers. We cannot all go to Paricutin so Minerals Unlimited bring Paricutin to us. See their ads.

Acid test sets are available for $21.95 from the Minerals & Supply Co., 416 Kansas Street, El Segundo, California. This set will enable the serious student prospector to make acid tests on 36 different elements in the field. An instruction booklet accompanies each set.

Clark Coolidge, of Providence, R.I., knows his state's minerals. Mr. and Mrs. Coolidge and son Clark paid us a visit in July and brought with them some intensly interesting specimens. We cannot list all of them but the outstanding items were; translucent quartz in nice green color from actinolite inclusions, short wave fluorescent scapolite which reacted a delicate red, extra fine agate, quartz after aphrosiderite, quartz with hornblende inclusions, and nacrite in quartz, all these and others from Rhode Island.

From all accounts, Ronald Januzzi is a busy man these days. Everyone who comes back from a guided tour of Connecticut localities says the same thing, "Can't wait 'till we go again with Januzzi." What more can one say? That's the way to find localities, with a competent guide. No more missing a hidden locality, wizzing by, or backtracking and losing valuable time. We know of one man who wishes he could place Ronald in his mineral studio for easy reference. We did the Januzzi trips and we want to go again! Ronald may be contacted in Danbury, Connecticut—85 Elm Street.

Speaking of guide service to localities, Gritzner's in Mesa, Arizona, go all out with jeep and camping gear. If you do not want the trip, you can buy the fruits of Gritzner's own collecting in Arizona and other states. Send a few dollars for some good Arizona material.

Without a doubt, one of the finest and most interesting collections in the east is that of Harold Evans, of Doylestown, Pa. And Florence Evans should be given gold medals for her cakes, hostess know how and twisted wire jewelry.

Persistence with advertising pays off in the long run. New advertisers find it difficult to renew their ads if, at first, and for a while, buyers do not pay too much attention to newly formed companies. Naturally the tried and true are favored. Our point, however, is this: though competition is keen, and that some older dealers feel that there is little room in an already crowded field, we feel that there are many types of very excellent materials that would not be offered to the buying collectors if it were not for new entrants to the field. We could mention many instances of this. Some few of the newcomers, who were urged by us to advertise, are now established sources of material which would ordinarily not have been made available. We have also advised some not to advertise certain materials; materials which we knew were already on the market in much better quality. And, again, we have urged some collectors, who had the urge of try selling, to contact dealers in an effort to release materials at wholesale. We have done this ourselves for longer than we wish to remember, though we are too busy to make an all-out effort along this line. Dealers know good materials. If your minerals are good, a livewire dealer will be only too glad to handle the retail end of the deal. Either way, keep trying.

And now for a laugh. Some years ago we received a nice large chunk of chalcanthite from a western collector. Believe it or not, that nice 4x6 inch piece of blue beauty is now only 1x2. How that piece has aged through humidity and wiping with a damp cloth. To make up for this, we sent an order to Wilfred C. Eyles for several nice chunks of blue chrysocolla.

You do not need a saw to enjoy the fun of making your own cabs. Arthur and Lucille Sanger's preformed cab material need only sanding and polishing. The assortment which they sent us not too long ago has long since been made up into beautiful stones—each stone costing less than thirty-cents.

If you do have a trim saw, you can order from 40 to 50 square inches of beautifully cut slabs in exquisite material for only $2.50 from Coast Gems, Inc,

8911 E. Valley, Rosemead, California. Other especially selected slabs run from 30 cents per inch to $1.30 per inch. This does not mean that none of the better material is in the assorted offer. The last we received from this firm were positively worth double the money.

We would not think of hunting Herkimer "Diamonds" without the aid of Claude Smith's little book, "Let's Hunt for Herkimer Diamonds." Pictures and maps will give you a better start in New York's famous county. A steel wedge, heavy maul and a large chisel may help a little more than hoping for easy-going good luck. They're there!

Tokyo, Japan, is exhibiting a fossil whale. It is one of the finds of the century. Sorry we have no accurate description of this interesting fossil. If it has legs we are glad, if not, we are sorry to have mentioned it. It is estimated that thousands of large and weird mammal fossils have yet to be discovered, to say nothing of many thousands of smaller mammal and other types of once living creatures, now fossil and buried in the earth. The age of the Japanese fossil is estimated to be 20,000,000 years old, a popular age for such fossils, if we may say so. Our own piece of fossil whale is now 20,000,000 and two years old—the one we brought back from Calvert Cliffs two years ago.

Why we are so fascinated with fossil whales, we cannot figure out. Maybe we have been searching for one with a throat opening large enough to do with a Jonah. Most whales we have seen would choke to death on a baby Balloon Fish.

It was so hot in Kansas this summer, that fluorite could be found on a dark night, simply by observing thermoluminescence in outcrops. Of course, one should take the above with a dose (or is it a grain?) of salt. However, several summers ago we braved the heat at night when the temperature did not drop to 80 until midnight, and collected some highly fluorescent slag with a short wave Mineralight. There was no moon nor starlight, yet the bank of manganous sulfate slag seemed to glow. The smell of sulphur was especially strong that night. We mentioned this before—sorry to repeat it.

The Fluorescent House, Beach Place, Branford, Connecticut, has an ample supply of this slag (the brightest Manganous Sulfate type in the U.S.) for distribution to fluorescence addicts. Small to very large and heavy pieces with the brilliant golden-orange short wave reaction and icy phosphorescence are available. The locality is fast becoming inaccessible; the brighter pieces more rare.

We are often asked, "What is the most valuable stone or rock in the collection"? With tongue in cheek, we sometimes say that it is the one on which we worked all day trying to get it out and finally having to give up and let it go to the crusher to be lost forever. A white willemite in fine radiating needles is highly prized—a large Franklin specimen which is extremely brilliant under short wave and the phosphorescence of which is terrific and of long duration. And yet that is not the only one. Oh, heck we just do not know. Maybe the most valuable ones have a little story inside of them.

Our quick trip to New England did not allow time to visit all of our collector and dealer friends. However, we did see some outstanding dealers' shops such as Schortmann's in Massachusetts, the Monadnock Mineral Shop in Marlboro, New Hampshire, and the Monroe Mineral Store in Monroe, N.Y. Our trip ended with a delightful visit with Doctor and Mrs. David Keller of Stroudsburg, Pa., who insisted that we stay two nights and collect rock crystals and other interesting minerals in the hills. Mr. and Mrs. Charles Litt assisted in locating collecting spots.

Those who have not seen everything (and who has?) should order a piece of howardite from the owners of the famous Rainbow Ridge Mine, whose firm name is the Rainbow Rock Shop, in Winnemucca, Nevada. Howardite is patterned somewhat in the plaid effect. While you are at it, order variscite and turquoise or a suite of Nevada Opals.

Our visit to the Mauch Chunk carnotite locality was thrilling to us, but

probably 'Old Hat' to the Litts, who guided us to the spot. Some very excellent fluorescent specimens were found. The rock, which is coated with apple-green carnotite and perhaps other rare radioactive minerals, is difficult to extract in sizeable pieces. It is a fact that some of the badly weathered and darkly stained conglomerate is the source of the brilliant fluorescence, rather than the more solid greenish-yellow, yellow or orange 'rich' ore.

Returning vacationers tell us fine things about ROCKS AND MINERALS advertizers. We have heard a great deal about Burminco, Plummers, The Bradleys, Compton Rock Shop and many other western firms —all good.

On our way back from New Hampshire, we heard that we should have visited this locality and that. We missed a lot, we know. Our special slide rule tells us that the time necessary to do all of the localities, even the most important, would have taken seven and one-half months and eleven spacious car-trunkful of specimens. Sorry we did not have time to visit some of the outstanding gem and mineral suppliers of N.Y. City. That week-end traffic frightened us.

Part of our trip found us searching for the Ennises of Wilkesbarre. Our two-car caravan got separated on the Merrit Parkway on the way to Connecticut. Howard Ennis, of eagle eye, singled us out (of 43,000 cars) and waved us in for a happy reunion and a cooling drink of lime juice. In spite of the super traffic jam, our sacksful of Trumbull scheelite, margarodite, massive topaz and other specimens seemed worth the trouble. None of these fine specimens would have been found without the able guidence and help of Ronald Januzzi.

We accidently found a rockslide full of fossils on Route 209, between Milford, Pa and Dingmans Ferry. Trilobites, and a dozen other fossils, were found in plenty. The spot is not a favorite fossil collecting point, however.

Shrine Desert Drama Bills Vermiculite in Star Role

Shriners of San Antonio, Tex., think vermiculite can take sand's place on the desert, just as it has in the building industry.

The fluffy mineral is a widely-used aggregate for lightweight plaster and concrete. Now the Shriners are spreading it across a stage and leading blindfolded initiates "across the desert."

At least the new members won't get any sand in their shoes.

Gold Prospectors get early start with Education Hobby Kit

Thar's gold in them thar hills and youngsters can start looking for it September 22 when a new "American Industry" Educational Hobby Kit goes on sale at leading U.S. and Canadian department stores.

Manufactured by the Gemological Institute of America, the kit teaches youngsters to identify rocks and use their own geologist's hammer and chisel to begin rock collections.

The new educational hobby kit program was instituted and coordinated by "Industrial America," Inc., in collaboration with the Museum of Science and Industry in Chicago.

Leading participating industrial concerns in the program and their kits include: Bauer and Black, medical training; Taylor Instrument Companies, meteorology; Radio Corporation of America, electronics; and the American Optical Company, optics.

Rock Detective Kit No. 1 starts out by providing means of identifying 24 samples of rock included in the kit. An illustrated book, prepared under the guidance of Encyclopedia Britannica, accompanies the kit.

The special book, two identification charts, strips of copper and glass, a piece of steel, and a magnifying glass comprise all the equipment for the identification.

Users of the kit learn many tests such as taste, smell, reaction to various liquids, and others to identify any rock in the kit or those which they may collect themselves.

After passing the identification stage, youngsters can begin to prospect. For this, a genuine geologist's hammer and chisel, together with numbered identification strips and a preprinted Rock Detective Fieldbook are furnished.

Thus, by the time the youth is finished with the kit he or she will have a fairly complete rock collection and be ready to delve deeper in the field of geology.

FOSSIL DEPARTMENT

Conducted by A. ALLEN GRAFFHAM

Box 419, Ardmore, Oklahoma

Crinoid Localities

Fossil crinoids have long been my favorite fossils. I think there are many reasons for this. For one thing, crinoids as complete crowns are among the rarest of fossils, secondly the diversity of forms and the intricate patterns of evolution among the several orders is extremely fascinating. There is probably no other fossil that could be used so accurately for stratigraphic work. Unfortunately crowns, or at least cups, are needed for this work and these are so rare that they can seldom be useful in this way. The living crinoids are among the most graceful and beautiful of the marine invertebrates; likewise, a well preserved fossil crinoid is really an extraordinary thing of beauty.

Localities for complete crinoids or crinoid colonies are not numerous. There are several over the United States which are now completely worked out. The most famous of these was Crawfordsville, Indiana. The crinoids here were of Middle Mississippian age. They were preserved in a fine grained, bluish, limy, and slightly shaley sand. The fossils themselves are either replaced with calcite or pyrite, and are very dark, sometimes black in color. This quarry was worked in the latter half of the 19th century by Washmuth and Springer, authors of the famous and monumental work *The Crinoidea Camerata*. As I understand, this old quarry is now filled with debris and water, and although there may be additional crinoids to be found, a great deal of money would have to be spent to collect a single crown.

Le Grand, Iowa, is another of the famous Mississippian localities where thousands of fine crowns were collected largely due to the work of Mr. Beane of Le Grand and Dr. Lowell Laudon, now of the University of Michigan. The crinoids here were in colonies or nests of varying sizes. The larger nests were several feet in diameter and some of the smaller, only a foot or two. The fossils were contained in a fine grained sandy, brownish lime. This layer is completely quarried out during the collecting of a colony. Later the slabs are split and the crowns exposed by long hours of tedious work with small steel tools such as pin vices and small dental tools. No power tools can be used as they only scar the delicate plates of the crowns. At this locality a few complete blastoids were found. By this I mean complete with stem and pinnules. The last colony was found at the Le Grand quarries some 15 or 20 years ago. It was at this quarry that Mr. Beane found the famous Mississippian starfish slabs.

Gilmore City, Iowa, is another of the famous crinoid localities. The crinoid colonies found here were in a shaly material between limestone lenses. The crinoids are usually preserved on the limestone slabs above and below the shale lenses with an occasional loose crown in the shale. The portion of this quarry that produced the colonies is now abandoned and rapidly becoming filled with rubble and water. We collected a marvellous colony here some years ago and took out several thousand crowns, as well as several small and one large starfish, and half a dozen complete echinoids with spines in place.

Kansas City, Missouri, is one of the few places to produce Pennsylvanian age crinoid colonies. These were found in the Lane Shale, mainly during the excavation for the basement of the Emery-Byrd Thayer building. Another famous Pennsylvanian crinoid locality is near Moscow, Russia, where snow white crowns were

collected out of a soft shale. Less famous localities which have produced marvellous material are Bartlesville, Oklahoma, and Ada, Oklahoma. The crinoids at Bartlesville are not in colonies but are found as loose crowns. The largest and indeed nearly the entire collection of this material is in the collection of Harrell Strimple of Bartlesville. The Ada locality was a true colony and was discovered by the author and Richard Alexander in 1952. The matrix was something like that at Crawfordsville, Indiana, except that it was extremely water soluable. Several thousand crowns were collected here as well as several dozen excellent starfish before the colony was depleated.

Ordovician crinoid colonies have been found in Canada, New York, and Oklahoma. I am not familiar enough with the Canadian and New York colonies to discuss them. The Oklahoma colonies were found mainly by the author. At one locality, four distinct colonies in as many different levels were found. Here the crinoids were preserved on the bottom side of a four to six inch limestone layer. Hundreds of crowns were present in the four colonies but seldom one that was really well preserved or completely exposed on the hard matrix.

Silurian colonies were located years ago in excavations in Tennessee. I believe these are no longer available to collectors. One of the famous Silurian localities was at Dudley, England, where numerous crowns were collected during the building of a railroad. Another famous locality is at Gotland Island, off the Swedish coast. Huge blocks of limestone covered with the large crinoid *Scyphocrinus* were collected on the bluffs of the Mississippi River in Missouri. These are now in the Smithsonian Institution. Similar colonies were found in Oklahoma by the author.

Devonian localities which produce well preserved crowns are for the most part in New York State. I am not well informed on these localities, but believe that some are indeed colonies. Some wonderful Devonian crinoids come out of Canada and others are found in Michigan. In Europe, the famous Bundenbach Slate quarries produced by far the most beautiful Devonian crinoids ever recovered. Excellent starfish, as well as crinoids, are still being found at this locality.

The only really famous Permian crinoid locality is on the Island of Timor in the Dutch East Indies. Here numerous well preserved cups along with the only known Permian blastoids are occasionally collected by expeditions to this island. A few crinoid crowns have also been recovered.

There are few Jurassic and Triassic crinoids found in North America. Crowns have been reported from Alaska and Wyoming.

Cretaceous crinoids have been found in Kansas. These are of the free swimming kind and belong to the genus *Uintacrinus*. I found a very nice colony of this crinoid in 1942. I recovered forty or fifty crowns, some with cups as large as small oranges, on a slab about 5x5 feet in size. As far as I know this was the last colony recovered from the chalk beds. Colonies had previously been removed by Sternberg and Martin. One of these colonies was very large, perhaps as much as 20 feet in diameter.

More about crinoids in a later issue.

LETTERS

In a letter from Howard V. Hamilton of Vandergrift, Pennsylvania, Mr. Hamilton suggests an excellent book for the amateur fossil collector. This book is *An Introduction to the Study of Fossils,* revised edition of 1933 by H. W. Shimer, published by the MacMillan Company of New York. Since this is a rather old book, it might be wise to check old book stores for a copy, if you are interested. Mr. Hamilton is interested in exchanging with someone for a fossil starfish and a complete crinoid.

Mr. Hamilton sent the following quotation by George H. Ashley, who was the former State Geologist of Pennsylvania. I think this is well worth reproducing here:

"Fossils are commonly looked upon as the concentrated essence of senile uselessness. And yet, to cite but a single example to the contrary, coal, one of the most useful substances derived from the rocks of the earth and one which is the basis of a great industry in Pennsylvania,

is made up chiefly of fossils, Yes, coal, narrowed down to its final definition, is simply the remains of plants that once, long ago, grew and covered the earth's surface. After passing through a long series of changes, these ancient plants have been altered to coal. Who has not seen the imprints of a "fern" leaf or some fragment of tree bark in coal? A minute examination of almost any coal will reveal parts of plants—broken, crushed, matted—but plant fragments nevertheless; and everyone of these shreds is a true fossil. How many of these ancient remains are useful things? It is said in the Orient powdered fossils have been taken internally for medicine. How efficacious this may be is problematical. The expert who "knows his fossils" can differentiate the several rock systems by their fossils, because those of each system are distinctive. If the fossils are a key to the identification of the systems, may they not also at the same time be a guide to ores, coal, petroleum, natural gas, building stone and the like?

"Then, too, aside from all this, disregarding the "monied interest in fossils," is there not something else? Art, some may think is valueless. It is true that a beautiful painting cannot be eaten with satisfaction, or clothing made from an imposing statue or a roof constructed out of a stirring symphony. Yet who will deny that painting, sculpture and music have a real and important place in everyday existance? So too, such purely scientific objects, as most fossils, have their interest and place among man's manifold activities. Certainly all persons are not scientists, but is there no pleasure in cracking open a rock and seeing an ancient shell whose vanished inhabitant dwelt in a long forgotten ocean? An object on which no human eye has ever before rested? Sealed in the rock for perhaps a hundred million years, it is preserved intact for modern man to wonder at today. Is there nothing interesting in the story which the dead, dusty and despised fossils tell us?"

A box of fossils and a letter were received from Peter Krump of Salisbury Center, New York. The fossils were of Ordovician age and consisted of brachiopods, bryozoans, and one trilobite tail. Though these fossils were quite interesting, they were not very well preserved, with the exception of the trilobite part.

Apparently I neglected to give the address of Allen Stoiber who wrote the excellent article on collecting fossils near Buffalo, New York. His address is 136 Davidson Avenue, Buffalo 15, New York. Several people wrote requesting this information.

UNITED STATES STONE MAP

A map of the United States, using various kinds of rocks and minerals is the accomplishment of Mr. and Mrs. John Roder of Toccoa Falls, Georgia.

Many problems were presented in making this 12 x 18 inch map and a few tense moments were encountered.

Each slab was polished and sawed into the outline of the state it was to represent. Instead of a trim saw all they had to work with was a 14 inch blade. A number of friends contributed to the project by supplying the Roders with various rocks.

The Roders found difficulty getting the map set as the slabs were of different thicknesses. The slabs were set in clay and brown water color was used for land markings outside of the United States, and blue for water.

They report that if they had it to do over again they would get the pieces all together and cut slabs all the same thickness and use a grinding wheel to get them shaped better.

Following is an alphabetically list of states, with the kind of stone used to represent each individual state on the map:

Map of the United States made of stone from each state.

ALABAMA—conglomerate
ARIZONA—chrysocolla
ARKANSAS—breccia
CALIFORNIA—petrified redwood
COLORADO—unidentified-green mottled mountain stream rock.
CONNECTICUT—siderite
DELAWARE—serpentine
FLORIDA—coquina
GEORGIA—marble
IDAHO—plume agate
ILLINOIS—fluorite
INDIANA—barite and calcite
IOWA—geode
KANSAS—dendrites
KENTUCKY—fluorite
LOUISIANA—crystallized sandstone
MAINE—rose quartz
MARYLAND—glassy quartz
MASSACHUSETTS—stone from Plymouth Rock.
MICHIGAN—petosky stone
MINNESOTA—granite
MISSISSIPPI—sandstone
MISSOURI—agate
MONTANA—moss agate
NEBRASKA—petrified wood
NEVADA—wonderstone
NEW HAMPSHIRE—lepidolite
NEW JERSEY—mica on serpentine
NEW MEXICO—agate
NEW YORK—serpentine and talc
NORTH CAROLINA—flexible sandstone
NORTH DAKOTA—agatized wood
OHIO—celestite
OKLAHOMA—core from oil well, rather soft
OREGON—nigger wood
PENNSYLVANIA—jasper
PHODE ISLAND—hematite
SOUTH CAROLINA—granite
SOUTH DAKOTA—rose quartz
TENNESSEE—unakite
TEXAS—petrified palm
UTAH—petrified wood
VERMONT—marble
VIRGINIA—green stone
WASHINGTON, D.C.—unidentified, orange colored rock
WASHINGTON—petrified wood
WEST VIRGINIA—cave aragonite
WISCONSIN—granite
WYOMING—agate.

Vermiculite House Featured in Air Conditioned Village

A $12,000 home built on top, bottom, and sides with vermiculite products is among the more than a dozen homes now being tested in the unique Air Conditioned Village, Austin, Tex.

The National Association of Home Builders is sponsoring the year-long project to determine the cost and effects of air conditioning as well as the performance of building techniques and products.

Sidewalls and attic of the vermiculite home are insulated with vermiculite. Walls and ceilings are vermiculite-plastered. The exterior is finished with vermiculite stucco. And the entire house rests on a vermiculite concrete slab.

The Zonolite Company, Chicago, and the Vermiculite Institute cooperated with builder George Maxwell in constructing the home. Test results are expected to be made available in 1955.

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.

Items on Interesting Sands Wanted. — Please Send Them In.

Two sands from Yuma, Arizona

"Last week I made a hurried trip to Yuma Air Force Base, Yuma (Yuma Co.), Ariz. While waiting for my plane, I had a short space of free time and visited the old mission site there, seeing also the memorial statue to Francisco Garces, who founded the Yuma Mission in about 1775.

"Under separate cover I have mailed you two sand samples from that area. One is Colorado River channel sand, dipped out of the river about 100 feet upstream from the main railroad bridge at Yuma, on the Arizona side. The second is from the 20 foot terrace, near the previous location, but all surface sand has been redistributed by wind action.

"As might be expected, Yuma was quite hot, and there is no danger of getting frostbitten there at present. No other news at the moment."—letter dated July 8, 1954, from R. L. Ives, 5415 Main St., Williamsville 21, N. Y.

The sample from the river is a fine grained brownish-gray sand. It consists chiefly of quartz (colorless, smoky, brownish, red chalcedony) with some pale pinkish garnet, silvery muscovite, and a very small amount of lustrous black magnetite.

The other sample, from the terrace, is surprising enough, identical with the river sand as to contents, color and size.

Olivine & Garnet sand from Buell Park, Ariz.

From Buell Park, Apache Co., Ariz., we have a sand sample that was sent us by T. M. Phetteplace, AEC Rattlesnake Camp, Box 548, Shiprock, N. Mex. His letter, dated March 15, 1954, reads:

"In regard to the olivine and pyrope garnet sand sample, the grains were scooped up from an ant hill at the base of an igneous plug, which is undoubtedly the source of the olivine but not the garnet. The latter are found at several rather widely separated localities on the Navajo Reservation, one only an hour's drive west of our camp, and I believe you will find in the geologic literature an account of one of these near Mexican Hat on the Utah-Arizona border, and a description of the outcrop from which the garnets are weathering out. If you would like a sample of the larger 'Arizona rubies' from the locality west of camp here, I can send you some."

The sample is a coarse brownish-greenish sand made up chiefly of greenish gemmy olivine with some red gemmy pyrope garnet. All the large grains of olivine and pyrope are of good quality, but there is also considerable mixtures of opaque red pyrope and tiny green olivine; these masses are friable and break down into tiny grains of olivine and pyrope. A few grains of black magnetite (some with embedded red pyrope) also present.

"Olivine and garnet sand. Buell Park, Navajo Indian Reservation, Arizona. Found by James Phetteplace, age 7, November, 1953."—on label.

River sand from Robbins, California

This is a fine grained gray sand. It consists of quartz (smoky, reddish), biotite (bronzy, some almost yellow as to resemble gold), gray feldspar, and black magnetite. Donated by the Editor's cousin, Peter Mohlsick, 316-19th St., Sacramento, Calif.

"Sand from the Sacramento River, Robbins, Sutter Co., Calif."—on label.

Phosphate sand from Lakeland, Florida

From a phosphate pit located 1 mile south of Lakeland, Polk Co., Fla., we have a sand sample that comes from a point 40 feet below the surface. This sand was donated by P. D. McFarland, 206 N. Abington Rd., Clarks Green, Penna. His letter dated Jan. 20, 1954, reads:

"Under separate cover you will receive a sample of sand from Lakeland, Fla. This sand is found at a depth of 30 to 50 feet below the surface and is mined

for its phosphate content. The phosphorus compounds are extracted and sold to chemical fertilizer manufacturers.

"These excavations are immense in size and rival the coal stripping operations of Pennsylvania. An excavation a quarter mile wide and nearly a half mile long is made by giant shovels and drag lines to a depth where the phosphate materials are encountered. These materials are removed and one side of the ditch is moved over into the pit and new materials exposed. A great many square miles are owned by this operation.

"The sand was brought me by T. L. Kelson, of Lakeland, Fla., a friend of mine and also a subscriber for ROCKS AND MINERALS."

This is a coarse gray sand. It consists chiefly of phosphorite (gray, brown, dark brown), with smoky quartz and dark gray fossil corals.

Quartz sand from Osage, Iowa

Ralph Lesch, 303 So. 7th St., Osage, Iowa, has donated a sand sample which he collected on a farm in his town, located in Mitchell County. This is a grayish-brown medium grained sand consisting chiefly of quartz (smoky, colorless, reddish, red carnelian), with a tiny amount of black magnetite and some white shells (perhaps snail shells).

Lake sand from Richardson Lake, Me.

A brown, medium grained sand. Consists chiefly of quartz (chiefly brown, also smoky), with white feldspar, silvery muscovite, black biotite, and a very small amount of black magnetite. Collected by Mrs. Pat Berry Barker, 19 Stocker Ave., E. Lynn, Mass.

"Beach on the Narrows separating Upper and Lower Richardson Lakes, Rangely District (Oxford Co.), Maine. Louise Dickinson Rich country, Sept. 1953."—on bottle.

Beach sand from Provincetown, Mass.

Provincetown, in Barnstable Co., Mass., is a summer resort on Cape Cod Bay. It has a fine land-locked harbor formed by the final crook of Cape Cod. From the beach here we have a sand sample that was collected for us by Dan and Christine Carbone, 622 Boulevard East, Weehawken, N. J.

The sample is a medium grained grayish sand speckled with brown. It consists entirely of quartz (chiefly colorless and brown, with some white).

Beach sand from Beaver Bay Minn

R. W. Nutting, 35 Forrest Drive, Pekin, Ill., sent us a sand sample which he collected on East Beaver Bay, Lake Superior (Lake Co., Minn.). It is a black, medium grained sand consisting chiefly of black magnetite, with some quartz (colorless, smoky, red, red carnelian, red chalcedony) and a smaller amount of green epidote, dark green olivine, and black basalt.

Dune sand from Columbia Marsh, Nevada

P. O. Drury, P. O. Box 1028, Las Vegas, Nev., has sent us a sand sample from Columbia Marsh, Esmeralda Co., Nev. This is a fine grained grayish-brown sand. It consists chiefly of smoky quartz with a tiny amount of black ilmenite, silvery muscovite, and lots of gray clay.

"Sand dune sample from edge of Columbia Salt Marsh, near Coaldale, Nev., on U. S. Highway 95"—on label.

Manganese sand from Camden Co., N. J.

In the last issue we mentioned a quartz sand (p. 393) that was sent us by Herman F. Bretthauer, 401 S. Washington Ave., Moorestown, N. J. The sand came from the Russell Ward's Sand and Gravel Pits on Pennsauken Creek, Camden Co., N. J. From the same pits Mr. Bretthauer sent us another sample, a medium grained black sand. The sand consists of quartz that is so heavily coated by black manganese that the quartz itself is black. A few quartz grains are smoky in color, some are white.

Sanidine sand from Bandelier N.M., N. Mex.

In the last issue sanidine sand was described that came from Reserve, N. Mex. (p. 393). Again we have a sanidine sand from the state and this one comes from Bandelier National Monument, Sandoval County. It was sent us by our Fossil Department Conductor, A. Allen Graffham, Box 419, Ardmore, Okla. His letter, dated April 23, 1954, reads:

"The sand is the residue from the local tuff after weathering and fills all the gullies and small stream beds. These are

dry most of the year so I think this would be considered a desert sand. I am sure that the major tributaries to the Rio Grande River in the area carry the same sand but probably not in such sharp crystals."

This is a coarse dark gray sand. It consists almost entirely of smoky gray, glassy, prismatic grains of sanidine (feldspar). Many of the grains exhibit the intense iridescence for which sanidine is noted. Many grains of whitish limestone also present.

The sand looks so much like common quartz that at first glance it was taken to be this mineral until the squarish outlines were noted which indicated it was not quartz. Examination proved it to be sanidine.

River sand from Beacon, N. Y.

Beacon, in Dutchess County, N. Y., is on the east bank of the Hudson River. About a mile south of the ferry slip in Beacon is Denning Point which has a beach about 600 feet long (in 3 sections) averaging 20 feet in width. From this beach the conductor of this column has a sand sample which he collected May 16, 1954.

The sample is a medium grained dark brownish sand. It consists of quartz (colorless, smoky, brownish), red garnet, black magnetite, silvery muscovite,—also much gray sandstone and gray slate. Many of the garnets and colorless quartz grains are little gems.

Denning Point used to be a summer resort—boats used to come over from Newburgh loaded with people. Dance pavilions, picnic grounds, refreshment stands, etc, were all there to make the people happy. When nearby Castle Point hospital was built about 1930—Denning Point lost its attraction and about a year later was abandoned. Reason—sewerage from the hospital. Now there is nothing on the point, not even a shack, but commercial fishing is carried on—in fact while we were there we saw 3 fishermen pulling in their net. This information was given the editor by Jack Eagan (18 Bank St., Beacon, N. Y.), who with his daughter Kathy, guided him to the locality. Ray Lapolla of Peekskill, N. Y., was with us also.

Llanite sand from near Llano, Texas

Llanite is a quartz porphyry in which the quartz phenocrysts (crystals) are opalescent. Llanite is sometimes called opaline granite. The rock has been named llanite from the county in which it has been found. If the rock is unique the sand is also and we are indebted for our sample to Mrs. Ruby Renfro, 2901 Bomar Ave., Forth Worth 3, Texas.

The sample is a coarse, chocolate-brown sand. It consists chiefly of pinkish feldspar (microcline) and bluish opalescent quartz (some of the quartz show crystal faces). Other minerals present are smoky quartz, while albite, black lustrous magnetite (some show crystal faces), black biotite, and white muscovite.

"This is a quartz porphyry sand, a weathering product of the neighboring llanite deposit. From the llanite deposit in Llano County, 11 miles north of Llano, Texas, on State Highway 16."—on label.

Mica sand from Arlington, Va.

In the May-June 1954 R & M mention was made of the finding of psilomelane in the Forest Hills section of North Arlington, Arlington Co., Va. (p. 261). A cousin of the Editor of R & M (Mrs Myrtle Phillips) lives here at 4606-27th St. This is in a new development—so new that the telephone had not been installed at the time of the Editor's last visit on April 2, 1954. About 25 feet in back of Mrs. Phillips' house there are 6 small areas of mica sand, flush with the surface of the ground. A sample was collected, to be examined later.

The sample is a medium grained silvery gray sand. It consists chiefly of silvery muscovite with some smoky quartz and a small amount of dull black magnetite (much of the magnetite is attached to quartz)—some magnetite has a bluish-red tarnish. Scooping up the sand was an odd experience—it was so soft and smooth.

Coral sand from the Azores

The Azores are a group of islands in the Atlantic, belonging to Portugal. From one of the islands we have a sand sample that was collected for us by Walter McNamara, 7 Harmony St., Danbury Conn.

The following item, dated May 24, 1954 comes from Mr. McNamara:

"The enclosed sand is from a beach near the village of Praia da Victoria on the Island of Terceira in the Azores. It is mainly composed, I surmise, of tiny shells and fragments and magnetite grains. The island otherwise offers little of interest to a rockhound, being of a uniform volcanic makeup. The beach sand is not especially selected but is typical of that particular beach area."

The sample is a coarse red sand sprinkled with white and black. It consists chiefly of coral (chiefly red, some white) and sea shells (white, pink, yellow, brown, colorless—some being glassy so that they resemble quartz). Dull black ilmenite is the next abundant constituent present, some dull black magnetite, colorless quartz, green olivine, and black basalt are also present. Some of the shells fluoresce reddish under the long wave light.

Dune sand from Englehart, Ont., Canada

This sand sample comes from the top of the Arctic Divide off Kings Highway 11, approx. 30 miles north of Englehart, Ont., Canada (in N.E. corner of Timiskaming South County). It was collected July 1, 1954, by R. Steeneck, 70 Perry St., New York 14, N. Y.

"On a recent trip up into northern Canada to see the eclipse, I collected some sand for you. The first sample was collected, of all places, on top of the Arctic Divide. How a sand dune got up there I just can't figure out. The picture shows just where the sand was collected.

"The second sample (from Nellie Lake) is more interesting as it contains some fluorescent (short wave) bits of material."

The dune sand is medium grained and gray. It consists chiefly of quartz (colorless, smoky, milky, some reddish) and feldspar (colorless, flesh color) with some dull black magnetite.

Lake sand from Nellie Lake, Ont., Canada

Nellie Lake is in the S.E. corner of Timiskaming North County of Ontario. From the lake we have a sand sample that was collected for us by Mr. Steeneck of New York City (see item above).

Mr. Steeneck collected the sand sample from dune across the road from the above sign on Kings Highway #11, Ontario, Canada (approx. 30 miles north of Englehart). Mrs. Steeneck is the lady in the picture.

Though Mr. Steeneck found fluorescent material in the sand, we could not spot any in our sample. The sample is a medium grained gray sand. It consists chiefly of quartz (colorless, smoky, milky, some reddish) and feldspar (colorless, flesh color), with minor amounts of green epidote, and black magnetite.

Beach sand from El Tabo, Chile

El Tabo is a little city on the west coast of Chile (in Santiago Province). From the beach at El Tabo, which is on the Pacific Ocean, we have a sand sample that had been collected for us by W. T. O'Gara, 1937 Hurley Ave., Fort Worth 4, Texas, when he was travelling in South America in 1952.

This is a brownish-gray coarse sand. It consists chiefly of quartz (colorless, brownish, smoky) and sea shells of various colors as brown, white, gray. Some greenish olivine and black magnetite also presesnt.

Beach sand from Ostersöbadet, Denmark

Bornholm, the 4th largest island of Denmark, is in the Baltic Sea, 92 miles east of Zealand or Sjælland (the largest and most important island). It is 24 miles long and 18 miles wide and has an area of 225 sq. miles. The surface of Bornholm is mountainous and the coasts rocky and dangerous to navigation. From Ostersöbadet, the extreme northern point of Bornholm, we have a sand sample that was collected from the beach for us by Gerhard Koppen, Skanegatan 3, Nybro, Sweden.

This is a medium grained gray sand. It consists chiefly of quartz (colorless, brownish, white, smoky) with some pinkish feldspar. Traces of pinkish garnet and black magnetite also present (some magnetite is embedded in quartz).

Beach sand from Ramsey, I of M, England

The Isle of Man is in the Irish Sea, between England, Scotland, and Ireland. It is about 32 miles long and 12 miles wide, the area 220 sq. miles. Ramsey, a pretty town on the N.E. coast of the island, is situated on a magnificent bay. It has an excellent beach and so is a popular resort.

From the beach at Ramsey we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland. The sample is a dark reddish-brown sand consisting chiefly of quartz (colorless, smoky, reddish), with large amounts of a black schistose rock resembling phyllite. Tiny amounts of black magnetite and white sea shells also present.

Lake sand from Guatemala

"I have just come back from a month in Guatemala. Knowing your interest in sand, I gathered at Lake Atlitan the nearest thing to sand I saw there on the shore of the lake. This country is covered with volcanic ash. I imagine the sand is an ash residue. The lake is in a spectacular crater of a volcano—like the Crater Lake of Oregon. If I ever get time I'll write an article on the trip.Best wishes." —letter dated April 3, 1954, from James A. Taylor, 25 Old Oak Rd., Glen Ridge, N. J.

Mr. Taylor did get the time to write the article and it appeared in our last issue—" Jade, Minerals and Guatemala," July-August 1954 R & M, pp. 362-366.

The sample sent us is a coarse dark gray (almost black) sand consisting of quartz (colorless, smoky, white), gray feldspar, brown limonite, and black magnetite.

Lake Atitlan, the 3rd largest lake of Guatemala (17 miles long) is in the western part of the country.

Beach sand from Madras, India

Madras, a city in Madras State, India, is on the Bay of Bengal. From the beach at Madras, we have a sand sample that was us by Miss Winifred H. Arnold, 2020 Magnolia Ave., Long Beach 6, Calif.

The sample is a fine grained brown sand. It consists chiefly of quartz (brown, colorless, red), gray feldspar, a tiny amount of lustrous black magnetite, also a few gray sea shells which fluoresce brownish under long wave light.

Residual sand from Hato Rey, Puerto Rico

David A. Burgess, Box 6667, Loiza Street Sta., Santurce, Puerto Rico, has sent us a sample of residual soil from Hato Rey (a suburb of San Juan), Puerto

Rico. This is a fine grained gray sand, all quartz (colorless to smoky).

Horatio C. Ray, in his very fine article "Minerals of Porto Rico," R & M, Oct. 1941, p. 358, says: "We have widely scattered beds of pure white sand in the north end of the Island. These are not beach sands, either ancient or modern. The theory is that they are residual sands formed by the large scale solution of a siliceous limestone. The amount of sand makes the theory somewhat incredible, but the form of sand is such that no other theory is tenable."

Hato Rey is in the northern part of Puerto Rico (Porto Rico).

Glacial sand from Mid Calder, Scotland

From Mid Calder, West Lothian, Scotland, we have a sample of glacial sand that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland. This is a coarse gray sand consisting entirely of quartz (chiefly smoky, but reddish, brownish, milky also present).

Quartz sand from S. Margarida Volcano, Spain

"I am sending you a sample of sand from the North Spain volcanic area. It comes from Santa Margarida Volcano, Gerona Province, Spain, and I collected it for you this past Sunday."—letter dated Nov. 25, 1953, from Juan Montal, Plaza Sagd. Corazon 1, Villafranca del Panades, Spain.

The sample is a medium grained gray sand. It consists chiefly of smoky quartz with white feldspar, gray lava, and a few grains of black augite. All grains are coated with an earthy gray powder (may be volcanic dust or ash).

Beach sand from Gebze, Turkey

Gebze, is a resort on the east shore of the Sea of Marmara, in Asiatic Turkey. From the beach at Gebze we have a sand sample that was sent us by Glen E. Kiser, Douglass, Kans.

The sample is a coarse brownish sand. It consists of quartz (brownish, smoky) and feldspar (pinkish, white).

GEOLOGY TEACHERS HONOR AUGUSTANA PROFESSOR

The Association of Geology Teachers, at its meeting held Nov. 6, 1953, at the Royal York Hotel in Toronto, Canada, named Dr. Fritiof Fryxell the first medalist of the Neil Miner award of that organization. The Award was established last year to recognize meritorious accomplishment in stimulating interest in the earth sciences.

Dr. Fryxell is geology professor at Augustana College, Rock Island, Illinois, where he has been teaching since 1923. During most of this 30-year period Dr. Fryxell maintained a "one-man department" at Augustana. A tribute to the effectiveness and stimulation of Dr. Fryxell as a geology teacher is the fact that during his teaching career over 100 young people have graduated from Augustana with degrees in geology. Most of these students did graduate work to the masters level and 26 have received or have nearly received the doctoral degree. This is a truly remarkable record for a small college geology department. Over 40 of Dr. Fryxell's former students are employed by oil companies as geologists; 20 are with federal agencies; 15 are geology teachers; 15 are now taking graduate courses; and the remainder are employed as consultants, mining geologists, geologists for state surveys, etc.

In addition to his teaching duties, Dr. Fryxell has accomplished important research work in this country and abroad. During the Second World War he was Assistant Chief of the Military Geology Section of the U.S. Geological Survey. In 1944 he was sent to England to coordinate American and British terrain intelligence and in 1945 he was sent to Manila as Research Director of the technical staff which provided General MacArthur's Headquarters with terrain intelligence.

Dr. Fryxell has been president of the Association of Geology Teachers and the Illinois Academy of Science. He has served on various committees and commissions for these organizations and the Geological Society of America, The American Geological Institute, International Geological Congress, International Council of Museums, and the American-Scandinavian Foundation.

It is apparent that Dr. Fryxell has been concerned with geologic education beyond his formal teaching and research, for he has written several books and articles interpreting the geologic features of our National Parks and was commissioned to plan a series of geologic museums for the Western National Parks. He is trustee of the Davenport (Iowa) Public Museum and in 1934 received the award of the Rock Island Junior Chamber of Commerce for outstanding leadership in his home community.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Mineralogical Society of Pennsylvania
THE "CHRYSO" MINERALS

A talk presented at the Lapidary section meeting of the Mineralogical Society of Pennsylvania, Dec. 13, 1953, by our Vice-President, Mrs. Gene Belz, North Line Street, R.D. #1, Lansdale, Penna.

In the standard text-books on Mineralogy we find five entirely different minerals whose names begin with the prefix "chryso" from the Greek "Chrysos" meaning gold and alluding to golden tones or color. They are chrysoberyl, chrysolite, chrysocolla, chrysoprase, and chrysotile. The first four are gem stones, some of great rarity and value, and the fifth is important commercially. Let us look at these different stones and examine them individually so that we can recognize them and evaluate them according to their physical characteristics.

1. *The Chrysoberyl.* This is really a family name, giving us three entirely different gems, Alexandrite, Cat's Eye, and golden chrysoberyl. It is an aluminate of beryllium or a compound of aluminum and beryllium oxides. Orthorombic xls. Hardness 8.5. Inferior in hardness only to corundum and diamond.

(A) ALEXANDRITE: This variety has been called the "emerald by day and the amethyst by night" because of its peculiar property of being green in daylight and a columbine or raspberry red in artificial light. This change of color is due to different color absorption which varies according to the kind of illumination. The stone first was found in the emerald mines near Ekaterinburg, Russia, on the birthday of the Czar, Alexander II, and was named for him. For many years the stone was not known or found elsewhere. Ceylon is the source of most present day Alexandrite. The stones found there are a bottle or olive green in daylight and a lighter and less vivid red by artificial light. The Russian stones are a muddy bluish green in daylight and a deep raspberry by artificial light. The color is said to be due to traces of chromic oxide.

(B) *Cat's Eye.* Cymophane. Also called oriental cat's eye. The color of this gem is usually a pale greenish yellow due to ferrous oxide, and also apple green, honey yellow, and dark green. Ceylon and Brazil are the chief sources. The chief charm of this stone is its mysterious band of light which glides across the rounded surface of the gem as it is moved from side to side, exactly like the eye of a living cat. Some stones show a hazy floating light instead of a sharply defined streak and then they are termed "cymophane" which means "wave of light." This chatoyance or shifting light is caused by great numbers of very small hollow tubes or canals, as many as 65,000 to the inch, arranged parallel to the main axis of the crystal. To show the best effect the stone must be cut with a curved top, with the canals running across the width of the surface, the "pupil" of the eye then appears down the length of the stone at right angles to these canals.

(C) *Golden Chrysoberyl.* Also known as chrysolite chrysoberyl. It also occurs in clear greens, yellows, browns, smoky brown and lemon yellow. Colorless crystals have been found recently on the Gold Coast of Africa and in Burma. Leading sources are Brazil, Ceylon, and Rhodesia. This member of the chrysoberyl family does not have any of the outstanding optical properties of the two mentioned above.

2. *Chrysolite:* Peridot, "Evening Emerald." This silicate of magnesium and iron is the gem variety of olivine, an important rock forming mineral. In hardness it is inferior to the majority of the well-known gems and is better adapted to pins and necklaces than rings. The crystals usually show the stubby prism of the orthorombic system to which they belong. At its finest, Peridot has a rich bottle-green color different from any other gem. Yellow green and olive green stones also occur. Originally the stone came from the Island of Topazios, now called St. John's, in the Red Sea. It is the "topazius of the Old Testament, and the second of the twelve stones in the High Priest's Breastplate. It is also the birthstone for the month of August and for those born under the sign of Libra. Another distinction for this stone is that it has been found in meteorites, of a size and quality suitable for cutting. In addition to the Egyptian island mentioned, Peridot is also found in the Diamond mines of South Africa, in Ceylon, Brazil, Burma, Australia and the United States. In Arizona and New Mexico large rounded pebbles are found around the ant hills along with pyrope garnets "mined" by ants in clearing their tunnels and runways. The golden green tones of peridot are emphasized in the old name Chrysolite

from the Greek, chryso meaning gold and lithos meaning stone. In medieval times, it was believed that chrysolite had the virtue of dissolving enchantments and of putting evil spirits to flight.

3. *Chrysocolla.* This blue to bluish green stone is found in the upper zones of copper deposits and is a hydrous copper silicate. It is usually translucent or opaque and rarely, if ever, transparent. It is cryptocrystalline and never found in distinct crystals. Chrysocolla has a world wide distribution and in this country in Arizona and New Mexico principally. The name comes from the Greek and means "gold glue" because chrysocolla, or much more probably a mineral resembling it, was used by ancient jewelers to solder gold.

4. *Chrysoprase.* A member of the great quartz family and distinguished by its apple green color, a chalcedony colored by nickel oxide. This stone was at one time in considerable demand as a decorative material. Its many uses included slabs for interior decoration. The chief source, the mines at Rosemitz in Silesia, have not produced any chrysoprase for over a century, and in spite of its beautiful color, this stone is now little known. Recent discoveries in California and Oregon have helped to restore its popularity, since it is again available. The name comes from the Greek chryso for gold and prason for leek. It is the tenth of the foundation stones, the "chrysoprasus" in Revelation in the New Testament. An old legend tells us that if a thief, sentenced to be hanged or beheaded should place this stone in his mouth, he would immediately escape from his executioners.

5. *Chrysotile.* This is a rock and not a gem stone, and is the fibrous silky variety of serpentine, better known as asbestos. It is a hydrous silicate of magnesium and is found abundantly throughout the world. Huge deposits occur in Thetford, Canada. It is usually green or yellowish in color and so fibrous that the rock can easily be pulled apart, even with the fingers.

New York Mineralogical Club, Inc.

The regular April meeting was held on April 21, 1954, in Schermerhorn Hall, Columbia University, New York City. Approximately 50 members attended.

President Dr. Stenbuck presided and called for order at 8 P.M.

The Secretary read the minutes of the preceeding 2 meetings which were accepted as read.

Dr. Richard A. Clinchy was elected a member.

The field trip committee reported progress on a field trip. Dr. Stenbuck reported a planned field trip to be held under the auspices of the Eastern Federation with more news to follow at the May meeting.

There were no further nominations for officers or directors from the floor, nominations were closed and the Secretary was directed to cast one ballot to elect the entire slate.

The Secretary cast one ballot to elect:
Dr. Frederick A. Stenbuck, *President*
Mr. H. Allen Mitchell, *1st Vice President*
Mr. Curt Geo. Segeler, *2nd Vice President*
Mr. Victor Pribil, *Secretary*
Mr. Fred T. Hayden, *Treasurer*
Dr. Frederick H. Pough, *Director*
Dr. Ralph J. Holmes, *Director*
Mr. Neal Yedlin, *Director*

The program began at 8:30. Dr. Stenbuck introduced the speakers Dr. Cloyd Smith, Consultant for Beryllium Corp., Mr. Stanley Feitler, Mgr. of Mines Beryllium Corp. and Mr. M. J. Donachie, President of Beryllium Corp.

Dr. Smith spoke first on Beryllium prospecting and mining comparing the proceedures in the U.S.A., South America and Africa, with slides to illustrate.

Mr. Donachie spoke comprehensively on "The Properties and Uses of Beryllium. Delightfully, he punctuated with his brilliant Caledonian wit, and traced the structure, properties, metallurgy, alloys and finished products of Beryllium, illustrated with slides: to increase extensively our knowledge of this little known element.

An active question and answer period followed. Expressing much pleasure for both speakers talks, a rising vote of thanks was extended by the members .

Beryl specimens from various localities were exhibited by club members.

An excellent group of cabs cut and polished by Vic Pribil from material personally collected by him on the beach at Percé, Gaspe Penninsula, Canada in the summer of 1952. These consisted of agate, jasper, hematite, and other colorful varieties of stone, all evidently sourced from the weathering and erosion of the conglomerate typical of that area of the Gaspe Pninsula, and forming much of the southern shore line.

Adjournmnt ended this Braw Bricht Burr-r-y Nicht at 10:04 P.M.

Victor Pribil, Secretary
47-18 37th Street
Long Island City 1, New York

South

Bexar County Mineral Hobby Club

The Bexar County Mineral Hobby Club of San Antonio, Texas, held its official installation meeting on July 1, 1954, in the County Park. The club fund furnished the refreshments of hotdogs, pies, cold drinks, chili and watermelon. There were 27 members present and numerous children (pebblepups).

The officers installed were Mr. R. L. George, President; Mr. L. O. Bush, Vice-President, Mrs. Arthur S. Imell, Jr., Secretary, Mr. Arthur S. Imell, Jr., Treasurer and Mr. Roger Viets,-3 year Trustee.

At the recent Annual Show and Convention held in Odessa, Texas, in May, 1954, the Club took the blue ribbon for its display entered in the group for competitive club displays.

Visitors to our meeting are always welcome and when passing through San Antonio, may contact me for the next meeting time and place or for just a visit to a fellow rockhound.

Mrs. Arthur S. Imell, Jr.
838 Clower Street
San Antonio, Texas

Chattanooga Rock and Minerals Club

The regular monthly meeting was held April 13, at 7:30 in Room 108 Science Hall, University of Chattanooga, Chattanooga, Tenn.

Mr. M. L. Hogshead, Jr., had the program, his subject being "Lapidary Fun." He described various abrasives and their suitability to different semi-precious stones; characteristics of the latter and how to treat them. The speaker displayed a number of beautiful stones he had cut and polished.

May Meeting

The May meeting was held on Tuesday, May 11, at 7:30 in Room 108, Science Hall, University of Chattanooga.

The speaker for the evening was Geo. C. Olmsted whose subject was "Florida Verterbrate Fossils." The Pleistocene Ice Cap drove a wide variety of mammals to Florida where they existed for thousands of years. Fossil horse, mammoth, mastodon,, bison and camel teeth, as well as glytodont scutes were shown.

June Meeting

The June meeting was held Tuesday June 8 at 7:30 in Room 108, Science Hall, University of Chattanooga.

The speaker for the evening was Mr. E. O. Scrudder, Chemist, Tennessee Valley Authority. He thoroughly discussed his subject, "Buying Coal in Large Quantities." There are three varieties of coal; anthracite, semi-bituminous and bituminous, although lignite and peat are also used as fuel. Each characteristic has its typical effect: moisture, sulphur, fixed carbon, volatile matter, etc.

July Meeting

The July meeting was held Tuesday, July 13, in the lecture room of the Chattanooga Gas Company, 811 Broad St.

Dr. H. J. Klepser, Professor of Geology, University of Tennessee, Knoxville, had the program, his subject being "The Geology of Tennessee." He grouped the State into five sections, beginning with the oldest rocks east in the Smokies, then the Valley and Ridge, next the Appalachian Plateau Province including the Cumberland, west of this is the Interior Low Plateau, with the Coastal Plain Province in the western end of the State. He pointed out the locations of frequent outcrops of Chattanooga Black Shale. His discussion was clear and interesting. Coffee was served.

Geo. C. Olmsted
1129 James Blvd.
Signal Mountain, Tenn.

Mid-West

Wichita Gem & Mineral Society

A trip to the Great Salt Plains area in Oklahoma was made in August by members of the Wichita Gem & Mineral Society. The members of the field party picked up selenite specimens on the trip. A bonus field trip took the members to a salt mine in Hutchinson, Kan., where specimens were collected from far underground. A panel of experts answered questions on minerals, fossils, rocks, lapidary and Indian relics at the regular August meeting.

Arch O'Bryant
The Wichita Eagle
Wichita 1, Kansas

St. Louis Mineral & Gem Society

The St. Louis Mineral & Gem Society will have a public exhibit of minerals, fossil and gems during the entire month of November, 1954. The exhibit will be in the main lobby of the St. Louis Public Library, 1300 Olive Street. The exhibit will be open to the public every day from 9:00 A.M. to 9:00 P.M. except Sundays.

Central Iowa Mineral Society

On July 5, 1954, 14 members of the C.I.-M.S. made a trip to the strip mine 5 miles southeast of Knoxville, Marion Co., Iowa (40 miles from Des Moines to the mine). Mr. Howard Barnett, a son of the owner, was in the party so we had a perfect guide to the location. At this mine a huge fossil fern has been found, tentatively identified as a species of lepidodendron, 30 feet long, with a maximum width of 22 inches and a thickness of 9 inches. A huge fossilized fern root had also been found, attached to the above fern.

All of the members of the club secured specimens of the fragments of the fern, but none of the 2nd or root stock, as no specimens were available.

A half block southwest from the first find, some stumps were found resting on or rooted to the basal shale; these stumps were 18 to 20 inches in vertical length and 20 to 24 inches in ground level diameter. Some stumps, 6 or 8, were loose on the floor of the excavation. We assume that they were of the same species as the other find. Fern fronds were also found here in the shale. Marcasite nodules were collected on the dump.

Frederick A. Brown
976—25th Street
Des Moines 12, Iowa

West

Mineralogical Society of Southern California, Inc.

A very successful annual meeting of the Mineralogical Society of Southern California took places in June when over one hundred people enjoyed a delicious dinner and participated in the business meeting, mineral auction, grab bags and sales.

The present slate of officers were unanimously reelected and in addition seven new board members were chosen: Bill Oke, Milton Wise, Don Stevens, John McCarty, Marna Gilbert, Wendell Stewart and Jack Rodekohr.

With the exhibits divided into five classes, according to the number of years exhibitors had been members of the Society, the following were the winners of ribbons: Class E, Ted Hurr; Class D, Jim Hurley; Class C, H. W. Scott; Class B, Bruce Lee.

For Class A, the "Best in Show" award, the lovely "President's Trophy" donated by President John and Secretary Peggy Powell, was presented to Willard J. Perkin for his fine display. This black walnut plaque has a sterling casting of a quartz crystal group at the top and plates for engraving each winner's name—the work of Robert Brewer.

Mrs. Milton A. Wise
1162 Woodbury Road
Pasadena 6, Calif.

FOSSIL SHARK TEETH FROM FLORIDA

By J. E. MOORE

3818 Bayshore Road, Sarasota, Florida

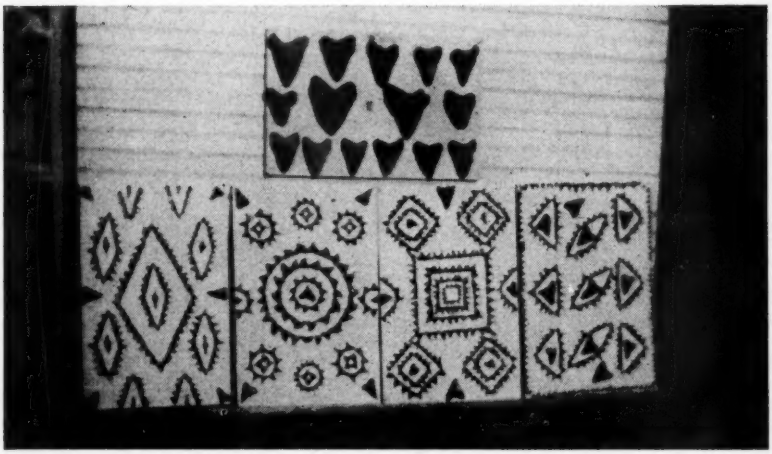


Photo of various fossil sharks teeth from Florida, in the collection of J. E. Moore

In prehistoric times sharks were abundant in the waters around Florida. There were small sharks and large ones and also extra large ones like the huge Carcharodon Megalodon; this shark reached the great length of over one hundred feet.

Sharks have several rows of teeth in their mouths, as many as five or more rows. This shark had hundreds of teeth in his mouth, the largest I have found is five inches long and three inches wide.

Except in the front row, the teeth lay flat in the roof of his mouth. As one tooth in the front row comes out or is knocked out, one in the row directly behind it will straighten up and fill in the vacant place.

Sharks have existed from the Eocene Period down to the present time. Most of the teeth we find in Florida are from the Pliocene and Pleistocene ages, all are well preserved and in a good state of

(*Continued on page* 513)

Publications Recently Received

Some of Earth's Oldest Rocks Found In Minnesota, 'U' Book Reports

MINNEAPOLIS—The granite hills around Saganaga lake in Minnesota's Arrowhead country, a familiar sight to vacationers and tourists, are among the oldest rocks to be found anywhere on the face of the earth. This fact is brought out in the book, "Minnesota's Rocks and Waters: A Geological Story" by George M. Schwartz and George A. Thiel, which was published June 3 by the University of Minnesota Press, Minneapolis 14, Minn. Price $4.00.

The book is intended for amateur geologists, "rock hounds," science students and tourists who are interested in knowing more about the landscape and geological features of the state. The authors, both professors in the University of Minnesota geology department, explain the long, geological processes that have formed the lakes and rivers, hills and prairies, rocky northland and fertile farm country that provide Minnesota with a richly varied geology.

The Arrowhead granite formations are the residue of what once were high mountains, the authors report. The mountains existed in a prehistoric era, millions of years ago. Wind, frost and rain wore them down, vast seas engulfed the land from time to time and then receded, and, finally, the Great Ice Age came. By the time the four great glaciers of that geological period had covered the area and then retreated, the face of Minnesota took on an appearance pretty much like the surface forms of the state we know today.

Minnesota had active volcanoes among its prehistoric mountains, the geologists point out. The proof can be found in beds of volcanic tuff, a porous, fine-grained type of rock found in some parts of the state. This rock is formed from molten material thrown into the air by a volcanic explosion.

The most powerful single agent responsible for the state's geological formations was glacial ice, according to the authors. The last glacier retreated from Minnesota 11,000 years ago, a recent date in geological reckoning. Almost all of midwestern United States and much of Canada were covered by glacial ice sheets at one time or another, but nowhere can a more typical example of ground moraine, the aftermath of a glacier, be found than in the gently rolling areas of south central Minnesota, the authors write.

The glacial after-effect known as a recessional moraine is well illustrated by a hummocky belt, about 10 miles wide, which crosses the region north of Willmar and extends northwestward through Glenwood, Fergus Falls and Detroit Lakes.

Although the retreat of the glaciers was the last major geological event in Minnesota, local peculiarities of land form have been caused by the neverending action of wind and water, Professors Schwartz and Thiel point out. On part of the Anoka sand plain, for example, local wind action has superimposed sand dunes on top of the glacial moraine. This sand plain extends from Minneapolis to Elk River, north to Princeton and east to the St. Croix valley. Small dunes also can be seen on Minnesota Point at Duluth.

The first part of the book explains geological processes. The second part outlines geological excursions through Minnesota, telling what features may be seen on trips through these sections: Northeastern Minnesota, Northwestern Minnesota, North and West Central Minnesota, the Minnesota River Valley, Southwestern Minnesota, and the St. Croix River Valley. The book contains 162 illustrations, including photographs, schematic drawings, and maps. A reference section provides a list of all Minnesota minerals and a glossary of geological terms.

Professor Thiel is chairman of the University geology department, and Professor Schwartz is director of the Minnesota Geological survey.

Ohio Geological Survey's New Report

The Ohio Division of Geological Survey, Department of Natural Resources, (Orton Hall, The Ohio State University, Columbus 10, Ohio), announces the publication of a new report in two parts, "Publication List, and The Story of Ohio's Mineral Resources," compiled by Dorothy G. Watkins and Ethel S. Dean: Ohio Geological Survey Information Circular No. 9, 47 pages, illustrated, 1953. Free distribution.

This revised publication list contains reference to all reports and maps ever published by the Ohio Geological Survey. Supplementary features of the new publication list are a finding list or index of subjects and counties; a complete description of all unpublished information available for reference in the files of the Ohio Geological Survey; and a descriptive section on Ohio's mineral resources.

The Story of Ohio's Mineral Resources is well illustrated with maps and photographs of the industries developing and utilizing the various mineral resources of the State: coal, petroleum and natural gas, clay and shale, limestone and dolomite, sand and gravel, lime, salt and brines, gypsum, and sandstone.

Ohio Publication

A. W. Marion, Director, Ohio Department of Natural Resources, announces the publication by the Division of Geological Survey and the Division of Parks of a new report, THE GEOLOGY OF LAKE HOPE STATE PARK, by Mildred Fisher Marple: Information Circular No. 13, 30 pp., illus. maps, 1954. Price 25 cents. Copies may be obtained from either the Division of Geological Survey, Room 106, Orton Hall, Ohio State University, Columbus, Ohio, or from the Division of Parks, Room 1106, Ohio Departments Building, Columbus, Ohio.

This is the second in a series of guide books to the state parks. The booklet is recommended as an addition to your picnic equipment or for a Sunday afternoon drive for it tells of the origin of the rocks and streams and the story behind the landscape of one of Ohio's beauty spots. The mineral wealth of the Lake Hope region is emphasized and the development of the natural resources related. The text is illustrated by many photographs, maps, and sketches.

"Prospecting with a Counter" Available from U.S. Government Printing Office

"Prospecting With A Counter," a U. S. Atomic Energy Commission booklet describing the use of radiation detection instruments in prospecting for uranium ores, has been placed on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

The booklet provides a more detailed discussion of the use of the radiation detection instruments than is contained in "Prospecting for Uranium," the AEC—Geological Survey handbook on uranium prospecting which has been on sale by the Superintendent of Documents since 1949. The two volumes are companion references for uranium prospectors.

The author of the 68-page booklet is Robert J. Wright, Chief of the Geologic Branch, Exploration Division, in the AEC's Grand Junction Operations Office at Grand Junction, Colorado. The price is 30 cents per copy. The booklet is a revised version of an earlier AEC report, RME-4028, by the same author and with the same title, which was formerly available from the Technical Information Service, U.S. Department of Commerce, Washington 25, D. C., for 25 cents. Because of the heavy demand for the report it has been made available as a public document through the Government Printing Office.

"Prospecting With A Counter" describes radiation detection instruments suitable for prospecting and summarizes information on their operation, use, maintenance and application to prospecting, mining and geologic problems. Emphasis has been placed on practical problems relating to the use of the instruments in the field. Their limitations as well as their useful characteristics are discussed.

Rockhound Buyers Guide

The second edition of The Rockhound Buyers Guide, edited and compiled by Lelande Quick, is a 192-page book which tells rockhounds where, when, what and how to buy. It is an encyclopedia for the rock hobbyist. This edition contains many new collecting spots, in addition to all of those given in the first edition. It lists hundreds of dealers and their products.

In the Foreword the Editor states "The rockhounding hobby has grown faster than ever during the last year. At least fifty new gem and mineral clubs have been organized and at least a hundred new dealers have entered the business while some of the older ones have liquidated or been liquidated by time."

This beautifully illustrated book, published by The Lapidary Journal of Palm Desert, California, sells for $2.00 a copy.

Connecticut Mineral Folios

Robert R. Kirkland, proprietor of Adventure Gateways, has embarked on a project which should meet with the hearty approval of all collectors. He is preparing folios that will eventually cover all of the mineral collecting areas in the State of Connecticut.

Folio No. 1 covers the Middletown pegmatite localities. It is an 8½ x 11, 8-page publication covering the following materials:

Maps — Index map showing general location of Middletown area (State of Connecticut picnic area map).

— Glastonbury, Connecticut topographic sheet (Army Map Service, 1/25000, 1948) showing 3 mineral localities.

— Middle Haddam, Connecticut topographic sheet (United States Geological Survey, 1/31680, 1952), 12 localities.

Mineral Notes on the area.

Bibliography — Geology and Mineralogy of the Middletown area.

This very fine addition to a collector's library (with a special Autumn bonus—reprint of recent articles on the Old Cobalt Mine showing location of shafts and tunnels)—costs only $2.98 per folio. Published by Adventure Gateways, 96 Tyler St., East Haven 12, Conn.

Arizona Publication

Exploration and Development of Small Mines, by H. E. Krumlauf, 34 pp, 8 figs. Published by the University of Arizona, Tucson, Ariz. 25c per copy (free to residents of Arizona).

Australia Publication

The Geology of the Country About Coolgardie Goldfield, W. A.

Part I — Regional Geology, by J. C. McMath, B. Sc. (Hons. Lond.). pp 11-119.

Part II — Selected Mining Groups, by N. M. Grays, B. Sc., and H. J. Ward, B. Sc., pp 120-355

A supplementary Atlas containing 24 maps in color accompany the bulletin.

Published as Bull. No. 107 by the Geological Survey, Perth, West Australia.